

The Canadian Medical Association Journal



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No. 12

A REPORT ON THE EFFECT OF HIGH CARBO- HYDRATE FEEDING ON THE NAUSEA AND VOMITING OF PREGNANCY

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SIMPLE, moderate and pernicious nausea and vomiting have long been a serious menace to the pregnant woman, and a persistently difficult matter for the medical practitioner to combat. For many years strenuous efforts have been made, both from the laboratory and the clinic, to understand the causes which underlie this most distressing and sometimes serious condition, and thus to remove the treatment of it from the realm of empiricism. Among the many workers in this field on this continent, one may mention Williams, Ewing, Stone, Murlin, Slemmons, Chipman, D. J. Evans, and De Lee. So numerous, indeed, have been the attempts in this direction that it would almost seem superfluous to present to the world another contribution on this subject. We have, however, attempted to approach the general subject of the toxæmias of pregnancy from a new angle. We deemed it advisable and instructive to investigate the very mild and almost innocuous types of early nausea and vomiting instead of the more aggravated and serious conditions which usually are the subject of study in this

field. We felt that, in this way, it might be possible to disentangle perhaps one or two factors which compose the clinical picture in its serious aspects. We deal in this paper with the types of toxæmia known, in its milder form, as "simple nausea and vomiting" or so-called "morning sickness", and, in its severer form, as "pernicious vomiting". The relationship of the earlier toxæmias to those occurring later in pregnancy still remains to be elucidated, though there is a large amount of clinical evidence that an underlying connection exists between the two. We reserve our study of the later toxæmias from the standpoint expressed in this paper to a further communication.

HISTORICAL REVIEW

Williams¹ was one of the first to classify the nausea and vomiting of pregnancy into types. He recognized three types: (a) Reflex; (b) Neurotic; (c) Toxæmic.

The first is relatively a very rare condition, the writers having met but three cases of incarceration of the pregnant uterus where vomiting was present, and at the same time we have met with the condition of incarceration twice, where pain and even threatened abortion was evident, with all evidence of vomiting absent. Even in the three first mentioned cases, vomiting and nausea was not relieved by correction. Evans* reports one case of severe incarceration with no nausea and vomiting. Chipman* further reports three cases occurring during the past year with no such accompanying condition. Reflex irritation may be a secondary factor in the development, but most obstetricians refuse to believe it to be a causal one. Appropriate obstetrical treatment in a condition of this kind would, of course, relieve its influence. In this same type of cases we have placed the so-called reflex irritations of a long narrow cervix, a rigid os and the influence of new growths.

The second or neurotic type was supposedly distinguished from the toxic type by a study of the ammonia-coefficient of the patient's urine. It might be as well to explain to those who have not been interested particularly in chemical terms that the term ammonia-coefficient is used to express the relation of the ammonia nitrogen to the total nitrogen in urine. Severe vomiting with a low ammonia-coefficient led to the diagnosis of a neurotic type; the toxæmic type was distinguished by a high ammonia coefficient. This view is

* Private communication.

still maintained by its author, though not in its entirety, in spite of the evidence to the contrary, especially by Stone² and by Ewing³ who independently showed that many cases of pernicious vomiting with a low ammonia-coefficient undoubtedly belonged to the toxæmic type.

We have been inclined, as a result of our investigation and its consequent results by treatment, to incorporate this second or neurotic type with the third or toxæmic type and to look upon the neurosis as an exhibition of a disturbance of the nervous system by the toxæmia. In support of this we would put forward the facts of our experience of over seventy separate cases of this condition and would draw your attention particularly to many cases where we had to deal with an absolute disinclination and even an antagonism to the continuation of the pregnancy. The neurotic element, without question, plays a large part as a secondary factor in these conditions, but in none of our cases could we allot to it a causal position. From this it will be apparent that we should prefer to place the nausea and vomiting of pregnancy solely under the one very general term of toxæmia.

The nature of the toxæmia is not by any means clear. That it could arise specifically from the foetus or the placenta as a specialized toxin or toxic metabolic product seems hardly possible in view of the reported occurrence of pernicious vomiting in presence of hydatidiform mole. Nevertheless a vast amount of research has been carried out on such lines and many attempts have been made, with reports of cures, to develop an anti-toxin in the body of the mother. The serum of the non-vomiting woman, taken from her, more desirably in the puerperal state, during the first ten days post-partum, and injected into a patient suffering from this condition, has frequently been used. The very number, however, of these attempts, with reported successes and then reported failures, leads one to regard with suspicion the possibility of the solution of the problem by this method of attack, and we do not, in this report, intend to review this particular phase of the literature.

The recent developments of the physiology of the ductless glands and their connection with the sexual organs, combined with their pronounced effect on metabolism, naturally has led to an investigation of their effect upon the pregnant state. Foulkrod⁴ and Ward⁵ claim splendid results from the administration of thyroid extracts. Placental extract has many advocates for its efficiency. Extract corpus luteum and adrenalin also have been enthusiastically recommended and endorsed by many admirers. Personally we

have occasionally tried these, empirically it is true, but have found them of very doubtful assistance.

The theory of intestinal putrefaction products being the cause of pernicious vomiting was put forward by Dirmoser⁶ who adduced evidence in its support. Without doubt, regularity of the bowel movement is an essential towards good health in pregnancy, even more so than in ordinary conditions, and no one doubts that intestinal putrefaction products may become a serious factor in pernicious vomiting, and, moreover, might even become an exciting cause in special cases. We have, however, many cases in our series where nausea and vomiting were present even to the pernicious type, although elimination by the bowel was proceeding normally. Furthermore, cases of uterine incarceration of such a marked degree as to bring about almost complete rectal obstruction do not necessarily cause nausea and vomiting. A case was reported to us by Dr. D. J. Evans, of Montreal, where a patient suffered from marked incarceration of the uterus between third and fourth month of pregnancy, to such an extent that the overloaded bowel was distinctly palpable as a large tumor mass through the abdominal wall, and yet the patient at no time in the weeks preceding relief showed any signs of nausea or vomiting.

The maternal liver has also been prominently put forward as the seat of the trouble. Post-mortem examinations of that organ of patients dying of pernicious vomiting and of eclampsia have revealed very often an extensive degeneration of the fatty type. The similarity of the symptoms of pernicious vomiting with chloroform, arsenic, and phosphorous poisoning and the acute yellow atrophy of the liver in pregnancy have been emphasized time and time again.

Based on the nitrogen partition of the urine and the finding of a high residual nitrogen, Stone² put forward the theory of "sub-oxidation". He believed that the failure of the maternal metabolism lay in the inability of the liver to cope with protein in the normal way and that some protein escaped its normal destruction. In support of his views, he claimed to have isolated from such urines as showed a high residual nitrogen crystals of leucine and tyrosine.

Ewing and Ewing and Wolf⁷ particularized the failure to destroy protein as a failure of deaminization of the amino-acids. They, too, found a high residual nitrogen, more especially in eclampsia, though they failed to corroborate Stone's crystals of leucine and tyrosine.

Murlin and Bailey⁸ held similar views, but were, however,

unable to find any increased amino-acid nitrogen in the urine. This point was decided by Van Slyke and Losee⁹, who, using the former's well known and accurate gasometric method for the determination of the amino-acid nitrogen in urine and blood, failed to find any increase in that fraction of the nitrogen in either fluid. The theories of Stone and Ewing are, therefore, to be abandoned. Van Slyke and Losee did find that eclampsia was distinguished by a low urea nitrogen, and that pernicious vomiting was alike "distinguished by a high ammonia-coefficient".

The significance of the high ammonia-coefficient in pernicious vomiting had, previous to the work of Van Slyke and Losee, been severely criticised by Underhill and Rand¹⁰, who were disposed to ascribe the change in the urinary picture in that condition as due to mere starvation. Williams¹¹ combats that view in its entirety, citing cases where, after emptying the uterus and the cessation of vomiting had occurred, the ammonia-coefficient fell to a low value, although no food had been taken.

Acidosis has been put forward also as the cause of the toxæmia (Zweifel¹²). It has recently been shown, however, by Van Slyke and Losee that a general acidosis, as revealed by a depletion of the alkaline reserve, does not exist to a very pronounced extent. There is even in normal pregnancy, where all symptoms of toxæmia are absent, a mild degree of acidosis, which is perhaps slightly increased in pernicious vomiting, but in neither the normal nor toxic pregnancy does an acidosis exist to that extent found in nephritis or diabetes and of such severity as to account for the symptoms, except possibly in the last or comatose stages. The presence of acetone bodies in the urine has frequently been noted in cases of pernicious vomiting, but that these were the cause of the toxæmia was vigorously denied by Ewing, who, discussing the question from the general standpoint of acid intoxication, pointed out:

1. That acid intoxication, as evidenced by the appearance of ammonia and acetone bodies in the urine, occurs in many well investigated conditions without the appearance of toxæmic symptoms.

2. That the administration of alkalies (diabetes) and carbohydrates (pernicious vomiting) removes the evidence of acid intoxication from the urine, but leaves the symptoms (clinical) unaltered.

3. That acids have never been obtained from the blood in anything like the quantity required to produce the symptoms, while the administration of acids in large quantities is required to produce

the toxic symptoms in healthy animals, and even then these symptoms do not closely resemble those of the true toxæmias.

From this very brief review of the literature it will be seen that neither from the point of view of cause or cure has any satisfactory solution of the problem of nausea and vomiting or pernicious vomiting been arrived at. Rest in bed, forced fluids, attention to excreta, diet, and control of the nervous system by the use of mild and strong sedatives, appears to be the most commonly adopted procedure for this condition.

GENERAL OUTLINE OF TREATMENT

It is evident from the above review that no one theory has succeeded in accounting for the toxæmias of pregnancy, and it occurred to us, as no doubt it has occurred to many, that, although perhaps there may be behind the toxæmia one causal factor, the clinical picture is compounded of many factors and that the problem should be attacked by attempting to differentiate the several factors in the same individual. In this connection the study of the nausea and vomiting of pregnancy, especially in its earlier stages before the clinical picture has become complicated by too many secondary effects, should prove of especial value. The nausea of pregnancy, with or without occasional vomiting, either continual or intermittent, such as the so-called "morning-sickness", occurring at the very beginning of the pregnant period, is too frequently not regarded as a serious condition. Yet it is most certainly the precursor of pernicious vomiting, and its study should show some light on that vexed problem.

In connection with the milder or intermittent type, it is to be noted that the majority of cases show the symptoms as "morning sickness". The nausea or vomiting disappears during the course of the day only to reappear the following morning. This would appear to depend upon the presence or absence of food. Indeed, the treatment of this condition, we all know, is usually effected by attention to the patient's dietetic and hygienic habits, directed in a more or less vague and general manner. This would all point strongly to the presence of a metabolic factor and that, in the earlier and presumably simpler form of pregnant toxæmia, this factor was the dominant one.

Of the various metabolic factors, the one most susceptible to disturbance is well known to be that of the carbohydrate. In endeavouring to trace out how such a disturbance could take place,

the authors' attention was directed to the work of Imrie¹³ and of Mottram¹⁴. The former has shown that the growing foetus is greedy of unsaturated fat. The latter, that often in the pregnancy of nervous and ill-nourished animals, the liver becomes overloaded with fat, that is, there is increase of fat present, which has come in from the fat depots. Mottram has also shown that a simple hunger of a few hours' duration, in some animals, led to the same condition. The phenomena are more or less physiological in character, as the effect on the liver is a transitory one. It seemed possible then that these two factors, pregnancy and a short period of hunger, might account for the periodicity of morning sickness, and that the metabolic factor here concerned was a temporary relative lack of glycogen in the liver. Such a condition, it is well known, leads to a fatty infiltration of that organ.

Two things should follow from this view. Such a condition of the liver is usually associated with a acetonuria, accompanied generally by acetoacetic and oxybutyric acids, evidence of which should be found in the urine of these patients.

Such a condition is obviated by keeping present in the patient an adequate supply of carbohydrate.

We may say at once in all cases of nausea and vomiting in pregnancy which we have studied, except in two of the very mildest ones, we have found the acetone bodies present in the urine. Those cases where we found it absent were mild ones of morning nausea, but in these particular cases we were not able to obtain and examine the freshly voided over-night specimen which we wished. It must, at this point, be clearly emphasized that we do not regard the presence of acetone bodies as the cause of the nausea or vomiting. We regard them as a secondary result. Ewing's arguments on this point are conclusive.

As stated previously, the basis of our work has been an attempt to trace out the influence of the metabolic factor in this nausea and vomiting. Lack of glycogen in the liver, with its precursor, insufficient carbohydrate diet, was held to be a possible disturbing element in the early forms, and our success with carbohydrate feeding bears out this supposition.

As a source of glycogen for immediate treatment, we have used glucose, cane sugar, and lactose. The administration of large doses of cane sugar or glucose, over a protracted period of time, is, however, with many patients, a practical impossibility; the excessive sweetness in itself becomes a source of discomfort, if not an irritant. We soon had to fall back upon lactose as a practical convenience.

Here the use of lactose, either by mouth or rectum (in the more severe cases of vomiting) met with very encouraging results, and we may safely state that we have treated over seventy patients, representing nearly all grades of nausea and vomiting, from the mildest to the most pernicious type, in this manner, with the greatest success. None of our cases in the later period of their pregnancies developed eclamptic or pre-eclamptic symptoms.

It will, no doubt, be pointed out that many of these cases, especially those of the mild type, would have recovered without treatment. We are quite prepared to grant this, but possibly it would have meant weeks or months of discomfort, and even the danger of a progression towards the more dangerous point. Also we would state from the experience in our hands that by so keeping up the carbohydrate supply by this method, recovery has been most rapid, especially in the mild cases—a matter of a few hours. Furthermore, by continued observation and treatment, the patient in only two severe cases showed signs of a reversion. Five severe toxic vomiting cases, in whom, previously terminations of pregnancy had to be resorted to, were carried to full term and the delivery of a healthy child. One must note in passing that but two cases, in this series of over seventy, under this treatment gave a positive lactosuria test, when on a lactose régime.

The effect produced is not purely a psychological one. We possess instances of marked success in cases where the termination of the pregnancy was desired and sought, often, indeed, to the extent of the patient antagonizing every attempt to administer the remedy by mouth or rectum, it being necessary to resort to submammary injection of glucose. In spite of this, and although these instances occurred in severely toxic conditions, they were carried to successful issue at full term. One striking case of success against psychological influence was a primipara, who, having before her marriage been a nurse, read the prescription for lactose given her, and decided she was being given a harmless placebo. In spite of an antagonistic mental attitude, she took the remedy and a moderately severe vomiting, with continual nausea and anorexia, completely disappeared within forty-eight hours and did not trouble her again.

Also, we must lay stress on the fact that as soon as possible we have placed the patient on a high carbohydrate diet. The carbohydrate was drawn from mixed sources, and we have insisted upon a preponderance of fresh fruit and vegetables in the diet. We have not limited the patient to any great extent; we have, however, cautioned her strongly against excess of any one particular dish,

and have advised a very moderate use of such dishes as are high in fat content. In this category we have placed butter, cream, pork, salmon, etc., and we have done this merely as a precautionary measure to avoid, as far as possible, disturbances to the patient's digestive system.

We are aware that these results bring us into conflict with the experiments of Ewing¹⁵, and Underhill and Rand¹⁰, who, by administering glucose, sometimes in very large doses, failed to improve cases of severe pernicious vomiting. For the present, however, we wish to rest our case on the positive results we have obtained, but later we intend to present evidence that at any rate in some cases of pernicious vomiting the use of glucose alone is ineffectual.

In summarising our results in a general way, the following points are to be noted.

1. *We have proceeded on the assumption that in the early toxæmias of pregnancy the dominant factor is a metabolic one.*

2. *We have utilized the physiological results of Imrie and of Mottram to connect the fatty degenerated liver found in post-mortem examination of fatal cases of pernicious vomiting with the mild and moderate cases of vomiting.*

3. *We have assumed a temporary lack of carbohydrate supply.*

4. *We have found, in practically all cases of nausea and vomiting in pregnancy, the occurrence of the acetone bodies in the urine*

5. *We have endeavoured to correct the deficiency of carbohydrate supply by administering glucose or lactose, but mainly the latter, and supplemented this by a high carbohydrate diet.*

6. *In this way we have successfully treated over seventy cases of nausea and vomiting in pregnancy, including several severe cases of the pernicious type.*

DETAILS OF TREATMENT

We have in our experiments met with seventy cases of vomiting in pregnancy. These have been divided into three classes—mild, moderate and severe or pernicious—according to the severity of the condition as exhibited by clinical evidence. There is, of course, no sharp line of demarcation between the three classes. They merely represent convenient divisions to correspond with the grade of treatment.

Class I: *Mild type.*

Nausea was present in all, at least once daily, usually in the morning, though some also shewed a distinct nausea at night. There are forty-two cases in this class. Twenty-seven shewed nausea in the morning only: fifteen shewed nausea, with vomiting, twice daily. In this group also we have included cases of spasmodic nausea or vomiting, occurring not oftener than twice daily.

The presence of acetone bodies in the urine was demonstrated in all cases except two. As a test for acetone bodies we used the sodium nitro-prusside test which, as demonstrated by Harding and Ruttan¹⁶, must be taken to indicate diacetic and oxybutyric acids, as well as acetone itself, and is extremely delicate. The treatment in these cases has been very simple, and the disappearance of the distressing symptoms has been very prompt. As far as possible the patient is advised to rest, demands of housekeeping are limited, and any exciting factors removed. Meat and fatty foods are eliminated from the diet and their place is taken by a liberal supply of carbohydrate food, such as potato, rice, oatmeal, vegetables and fruit. In addition, one to one and a half quarts of a 5 per cent. lactose solution are taken daily by mouth. The actual amount of lactose to use is determined by constant urine examination. With the first sign of lactosuria, the dosage is diminished. When the nausea and vomiting are fully controlled, the amount of lactose is rapidly cut down to about fifteen grams per day. The patient may rapidly return to ordinary diet.

All cases so treated recovered very rapidly, and were delivered at full term of healthy children.

Class II: *Moderate type.*

In this class we have included those cases where the nausea was continuous, or the vomiting more frequent than twice daily but not continuous. These cases also shewed some distinct sign of toxæmia, as, drowsiness, headache, furred tongue, nervous irritability, anorexia, constipation and decreased urine output. We have had seventeen of these cases under observation, and all of them shewed acetone bodies in the urine to a marked degree.

Rest in bed, with immediate correction of any excretory defects, is at once insisted upon in these cases. As in the mild type, protein and fat are taken from the diet, and carbohydrates forced as far as possible. One and a half quarts of a 5 to 10 per cent. lactose solution are given by mouth, if this can be tolerated. If not, this

solution is given by rectum, using a urethral catheter and giving very slowly ten ounces every four hours. The actual strength and continuance of the dosage are determined by the symptoms and the urinary findings. The treatment must not be pushed to the extent of causing lactosuria. As soon as possible the rectal administration is replaced by oral, and every effort is made to force carbohydrates in the diet, small quantities being taken at frequent intervals if desired. Proteins may be replaced as soon as the vomiting and nausea are under control. It is wiser, however, to defer the reintroduction into the diet of fatty foods.

All these cases terminated with favourable results to mother and child.

Class III: Severe or pernicious type.

In this group we have eleven cases of the most serious kind. The nausea and vomiting was continual and quite independent of any attempt to partake of food. In seven cases jaundice was apparent, and very marked in two of them. Four of them had the so-called coffee-ground vomitus. The urine of five of them shewed albumen and casts. They all of them shewed marked symptoms of toxæmia, one being in a state of semi coma when first seen. Severe epigastric pain was also marked in all of them.

Rest in bed, with complete isolation, is at once insisted upon. No attempt, however, is made to force any food at the beginning of the treatment. Any defective bowel excretion is corrected by enema, and the lactose solution administered by rectum as directed in the treatment of the moderate type of case. In case of disinclination or inability to retain the lactose enema, two hundred c.c. of a sterilized 5 per cent. glucose solution is injected under each breast. In those cases where this procedure has been followed, one injection has been found to be sufficient. As soon as possible rectal and finally oral administration of the lactose solutions are resorted to. As soon as the patient shews any inclination for food, small amounts of carbohydrate food are supplied at frequent intervals. The continuation of the treatment and the dieting then follow the course prescribed for the moderate and mild cases.

All eleven cases were carried to full term and delivered of healthy children, one of twins.

SYNOPSIS OF TREATMENT

1. Divide into three groups—Mild, Moderate, Severe.
2. Daily routine examination of urine—total quantity, acetone reaction, and its intensity, specific gravity, albumen, sugar, bile.
3. *Rest*—
Mild cases—limit demands of housekeeping, etc.
Moderate cases—rest in bed.
Severe cases—rest in bed with isolation.
4. *Excretion*—
Correct defects in functions of lung, skin, kidney, bowel.
5. *Diet*—
Mild and moderate cases, eliminate proteids and fats for forty-eight hours. Force carbohydrates (fruits, cereals, fresh vegetables).
Severe cases—absolute rest from all food by mouth for about forty-eight hours. Begin carbohydrates as soon as patient may be able to retain them. To be given frequently and in small amounts.
6. *Medication*—
Mild cases—Lactose solution, 5 per cent., one to one and a half quarts daily by mouth.
Moderate cases—Lactose solution, 5–10 per cent. one and a half quarts daily by mouth if possible—when not retained, this solution may be given by rectum, using a urethral catheter giving very slowly ten ounces and repeating every four hours.
Severe cases—Sterile glucose solution, 5 per cent.—two hundred c.c., under each breast for one treatment, then use method of rectal injection of lactose.
In both moderate and severe classes, the administration by mouth should be resorted to as soon as possible.
7. When the nausea and vomiting are fully controlled, the amount of lactose per day may be reduced to fifteen grammes, later this may be further reduced to a fifteen gramme dose tri-weekly. In all cases the reduction of the treatment or its discontinuance must be guided by an examination for acetone bodies and lactose in the urine.
8. Return to a diet mixed with protein may be made as soon as the nausea and vomiting are under control, but a return to the fats must be made more slowly.

RÉSUMÉ OF RESULTS

In the mild and moderate cases the results from treatment along these lines were most gratifying. Complete and continued relief occurred in twenty-eight cases within forty-eight hours. Complete relief from vomiting, but with occasional returns of nausea, occurred in twelve cases. Many of the relapses we were able to trace to indiscretions in diet.

Two cases shewed a continual nausea with hyperacidity throughout entire pregnancy; both of these cases continued to full term with no graver symptoms developing.

In the moderate cases fourteen gave evidence of immediate and continued relief within one week of the installation of treatment. Three cases, however, were more stubborn and shewed some tendency to revert to the pernicious type. With more complete isolation in hospital wards, success was very speedily obtained.

In these mild and moderate groups it may be as well to state that in forty-six cases pregnancy had not advanced past the first ninety days before treatment was commenced; the remaining thirteen cases were between the third and sixth month.

In the pernicious group of eleven cases (seven primipara) the severe vomiting developed within the first one hundred and twenty days of pregnancy and only three shewed any recurrence in the later periods. It is also interesting to note that among the multipara, three had had previous pregnancies terminated for toxic vomiting, and two of them on two occasions, whereas all proceeded under this treatment to full term.

References:

1. WILLIAMS, J. W.—*Bulletin Johns Hopkins Hosp.*, 1906, vol. xvii, page 71.
2. STONE, W. S.—*Amer. Gyn.*, 1903, vol. iii, page 518; *New York Med. Rec.*, 1905, vol. xlviii, page 295.
3. EWING, J., and WOLFF, C. G. L.—*Amer. Jour. Obst.*, 1907, vol. lv, page 289; *Amer. Jour. Med. Sci.*, 1906, vol. cxxx, page 751.
4. FOULKROD, J.—*Amer. Jour. Med. Sci.*, 1905, vol. cxxxvi, page 541.
5. WARD, J.—*Surg. Gyn. Obst.*, 1909, vol. vii, page 617.
6. DIRMOSEER—*Wien. Klin. Woch.*, 1903, vol. xvi, page 405.
7. EWING, J.—*Amer. Jour. Obst.*, 1905, vol. xxi, page 145; *Amer. Jour. Med. Sci.*, 1910, vol. cxxxix, page 828.
8. MURLIN, J., and BAILEY, W. H.—*Jour. Amer. Med. Assn.*, 1912, vol. lix, p. 1522.
9. LOSEE, J. R., and VAN SLYKE, D. D.—*Amer. Jour. Med. Sci.*, 1917, vol. cliii, p. 94.
10. UNDERHILL, F. P., and RAND, R. F.—*Arch. Int. Med.*, 1910, vol. v, page 61.
11. WILLIAMS, J. W.—*Obst.*, 1917, 4th ed., page 550.
12. ZWEIFEL—*Munchen Med. Woch.*, 1906, vol. liii, page 297.
13. IMRIE—Private communication CAN. MED. ASS. JOUR., 1915, July, page 1.
14. MOTTRAM, V. H.—*Jour. Physiol.*, 1909, vol. xxxviii, page 281, 1914; vol. xlix, page 23.
15. EWING, J.—*Arch. Int. Med.* 1901, vol. iii, page 485.
16. HARDING, V. J., and RUTTAN, R. F.—*Bioch. Jour.*, 1912, vol. vi, page 445.

DIAGRAMS FOR SHOWING LIMITATION OF
MOVEMENTS THROUGH JOINTS, AS USED
BY THE BOARD OF PENSIONS COM-
MISSIONERS FOR CANADA

BY CAPTAIN D. E. H. CLEVELAND, C.A.M.C.

THAT the graphic presentation of many facts is vastly more comprehensible than their verbal description needs little argument. In a picture an idea may be presented without ambiguity, and with its essential points properly emphasized. To succeed in this regard by verbal dexterity, is an art, the mastery of which is possessed by few, and by them only after long years of practise. The advantage of pictorial over verbal expression in teaching is illustrated by the predominant part played by pictures and drawings in our studies from the kindergarten to the final college year. In medicine, we remember best the teachers who used the blackboard with facility and enthusiasm, and we are inclined to judge the text-book by the clearness and intelligibility of its illustrations.

The work of the Medical Advisory Branch of the Board of Pensions Commissioners for Canada consists in estimating, from descriptions of pathological conditions, the extent of the disablement of the individual described. To make satisfactory estimates, it is essential that these descriptions be not only accurate and comprehensive, but also clear and concise. The medical boards by whom the descriptions are written very often find great difficulty in fulfilling these requisites. This is particularly noticeable when they describe conditions where joints have suffered partial or complete ankylosis. The method usually employed is to estimate the angle at which the ankylosed joint is fixed, or the angles of its full flexion and extension if limited in motion, but the lack of uniformity, due to the diversity of opinion regarding the angles to be measured, makes such attempts at description of very little use.

Innumerable examples might be quoted showing the difficulty of interpreting verbal descriptions by means of angles. The simplest is that of a forearm held at right angles to the upper arm by ankylosis of the elbow joint. This would generally be described as a position of ninety degrees of flexion of the forearm. But by

this some examiners would mean that the flexor surface of the forearm was at an angle of ninety degrees with the flexor surface of the upper arm, while others would mean that the extensor surface of the forearm was at an angle of ninety degrees with the position it would occupy were the forearm completely extended. It is obvious that there would be no difficulty in this case no matter which idea the examiner might have had. But if the forearm were similarly ankylosed half way between complete extension and flexion to a right angle, some examiners would describe the condition by measuring the angle between the flexor surfaces of the upper arm and the forearm and would say that the forearm was flexed to an angle of one hundred and thirty-five degrees. Others would measure the angle between normal extension and the extensor surface of the forearm and say that the forearm was flexed forty-five degrees, and still others would say that it was flexed to forty-five degrees. Each of these statements is correct. The difficulty lies in determining which angle the examiner was describing. Attempts have been made to formulate an arbitrary system by describing the angles to be measured but efforts in this direction seemed merely to add to the confusion. The instructions have been differently interpreted by different examiners and the effect, of this lack of uniformity has become more and more serious as the number of cases with these conditions increased. It was early realized that some scheme of standardizing the description of these conditions was essential to the work of the medical advisers to the Pensions Board.

The first idea which occurred to me was that rubber stamps, similar to those depicting the thorax and generally used for showing graphically physical signs in the chest, might be obtained. With these it was thought that the exact degree of the limitation of movement in affected joints could be clearly shown—and the difficulties arising from verbal descriptions avoided. It was, however, found impossible to procure such stamps as were required, and the suggestion of designing stamps especially for this work was made. For this purpose some rough sketches were drawn, and, as it was discovered that there were certain disadvantages in the use of stamps, it was thought that these sketches might in an improved form be used as charts. It was then planned to make separate drawings of the skeletal structures forming each of the principal articulations and to show the point of fixation or the extent of the movement of the moving part by taking an arbitrary fixed point at the joint as the centre of a circle of which the moving part formed

the radius. On the circumference of the circle thus formed the point of fixation of the part—or the limits of its mobility could be marked. It was assumed for the sake of clearness that all movements through joints are circular and though this is not actually the case, it is sufficiently so for the purpose intended.

The point finally decided upon as the centre of the circle was that which remains constant in all the movements of the joint. In ball-and-socket joints the centre of the head of the moving bone was chosen; and in other joints the centre of the articular surface of the fixed bone.

The idea was elaborated and the draughting and printing of a complete set of diagrams was undertaken under my personal supervision. In these the fixed point is shown by a small heavy cross and the normal range of movement by an arc or a complete circle. These are subdivided into segments of one sixteenth of a circle or twenty-two and one-half degrees.

Great pains were taken to secure anatomical accuracy in the diagrams, and, though something of mathematical exactitude may have been sacrificed in showing all movements as circular, the clearness of the results has justified this assumption. The use of each diagram, of which there are thirty in all, is explained in brief on the form. These explanations have been made as concise as possible in order to avoid the loss of usefulness which not uncommonly results from long and involved instructions.

The diagrams cover all of the movements at all the joints except the temporo-maxillary. They show the outline of the body and of the skeletal structures, and include the whole of the moving part and a portion of the fixed part. In several of them the entire body is drawn. There are three showing the movements of the head on the neck, sixteen for the movements of the joints of the upper extremity, and eleven for those of the legs.

In use, these diagrams have proved not only simple but most effective. The examiner measures, with his eye, the movements or the fixed position of the limb and marks upon the circle the limits of its mobility or the point at which it is fixed. The desirability of the general use of instruments of precision for measuring angles has not yet been established to the satisfaction of the Board of Pensions Commissioners and Director General of Medical Services. Some medical boards sitting at hospitals in the larger centres are using such instruments of which simple forms are very easily improvised. With larger experience it may be found advantageous to make their use obligatory.

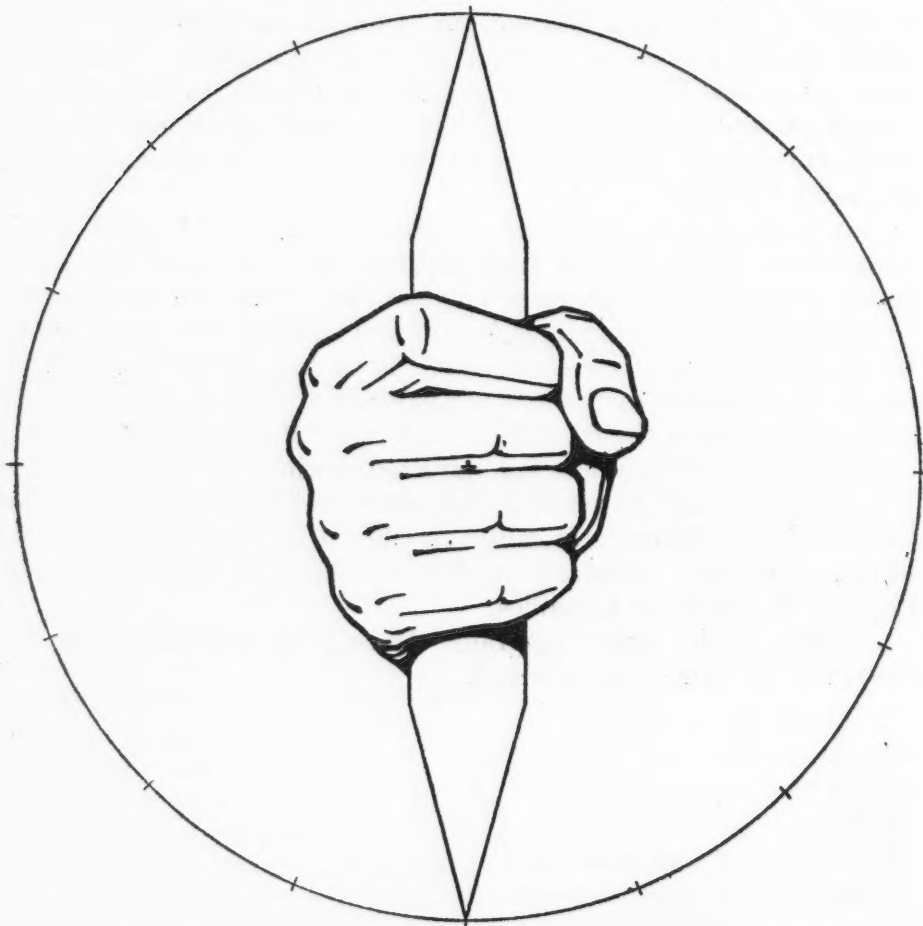
In addition to the purpose for which these diagrams were constructed, they have been found very useful in depicting the exact site and value of amputations, mutilations and serious scars, and since nearly every bone is shown in at least one of the series, a copy of radiological findings in cases where there are foreign bodies in the tissues, is by their aid easily furnished. With very little alteration they afford a graphic description of the position of and movements through false joints. These additional uses are, however, strictly subordinated to the purpose for which they are primarily intended.

A booklet is in course of preparation which will contain full instructions for the use of each diagram and will detail the additional uses to which the series may be put. This will be supplied to medical officers sitting upon boards and medical examiners for the Board of Pensions Commissioners. It is hoped that the general use of the diagrams in all cases of ankylosis and limitation of movement will result in the acquisition of a body of scientific knowledge not obtainable by any less standardized method.

Reference may be made to Fortescue Fox's "Physical Remedies for Disabled Soldiers", in which is shown a chart of somewhat similar diagrams, prepared by Dr. Cololian, of the Centre for Physical Research at Versailles.

Three of the thirty diagrams devised are published here to illustrate the principles involved.

SUPINATION AND PRONATION OF THE FOREARM



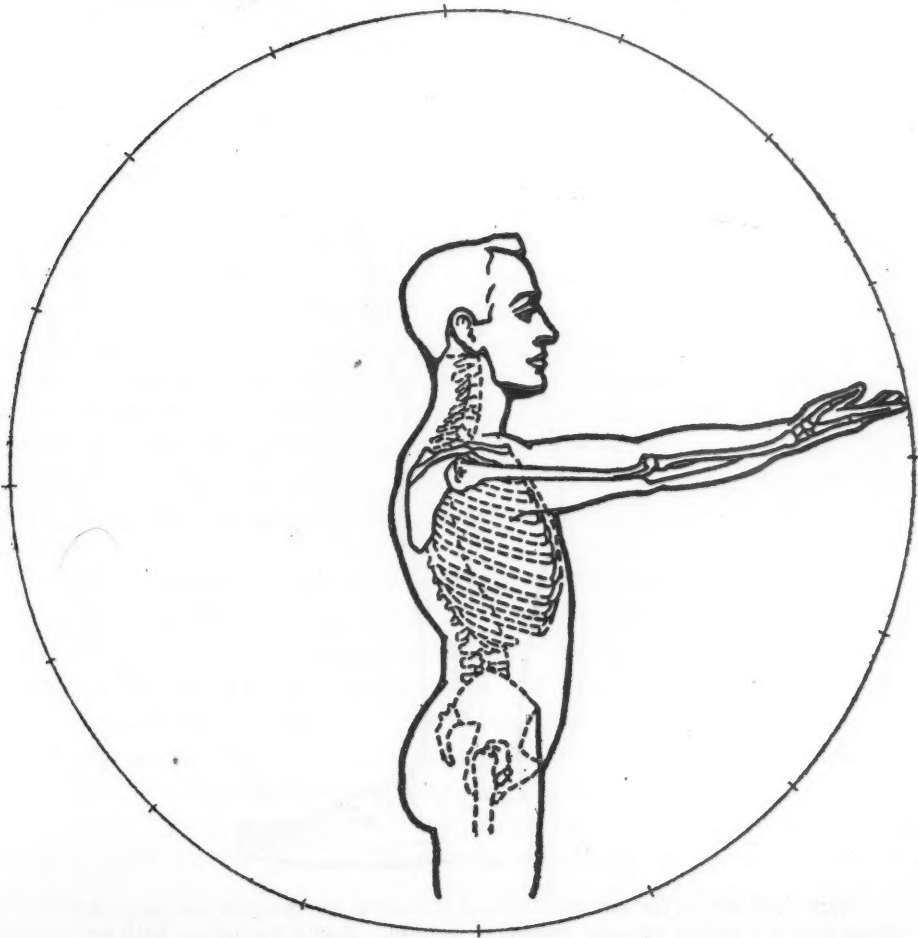
The arm should be held in position of forward elevation from the shoulder. A pencil, or similar object, to serve as an indicator, should be grasped in the closed fist so that its point will move in an arc when the forearm is rotated. Measures should be taken to prevent participation of any shoulder movement. In certain cases where shoulder movement may be a factor of importance in increasing the range of movement use one diagram to show movement in forearm solely and another in which shoulder movement is permitted, stating what each diagram is to show.

Mark with ink on the circumference of the circle in the diagram, the points indicating the position of the upper end of the pointer in extreme pronation and extreme supination (active). Join these points with an ink line following the circumference of the circle, which will then indicate the full extent of active movement.

If it is considered desirable to indicate Passive movement, also, use another diagram in the same way, stating that it shows Passive movement.

Each sub-division of the circle represents $22\frac{1}{2}$ degrees or $\frac{1}{2}$ of a right angle.

CIRCUMDUCTION OF THE ARM

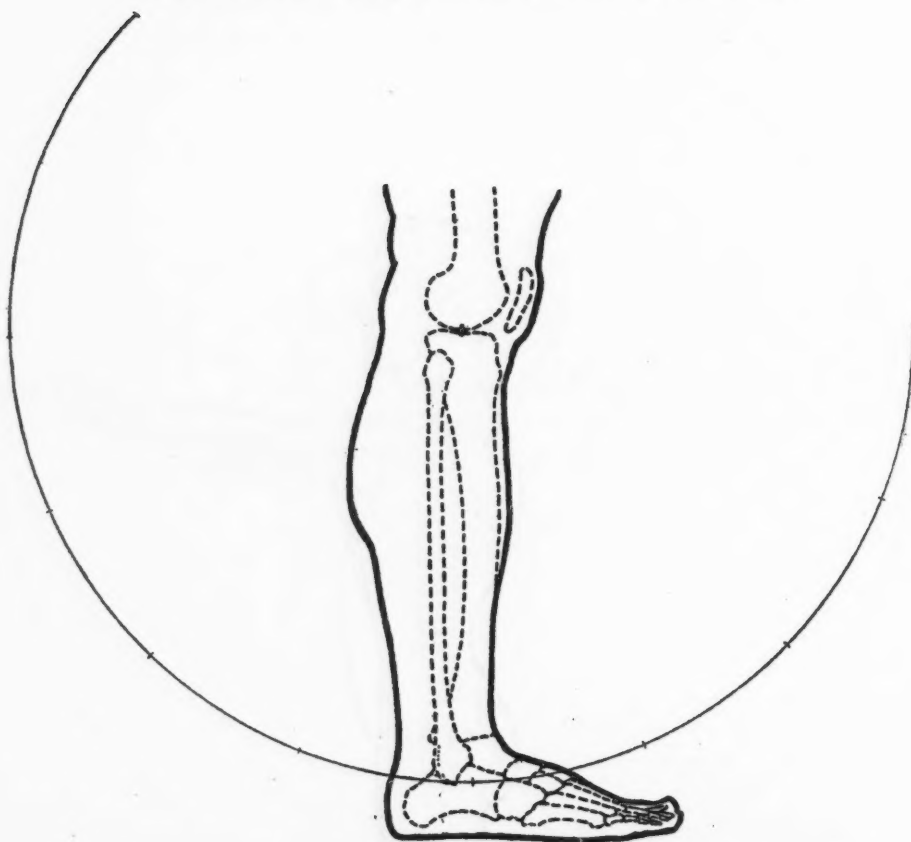


Observe the points of extreme forward and backward elevation (active) and mark these points with ink on the circumference of the circle in the diagram. Join these points with an ink line following the circumference of the circle, which will then indicate the full extent of active movement.

If it is considered desirable to indicate passive movement also, use another diagram in the same way, stating that it shows Passive movement.

Each subdivision of the circle represents $22\frac{1}{2}$ degrees, or $\frac{1}{4}$ of a right angle.

FLEXION AND EXTENSION AT THE KNEE JOINT



Mark with ink on the circumference of the arc in the diagram the point of extreme flexion (active) and of extreme extension (active). Join these points with an ink line following the circumference of the arc, which will then indicate the full extent of active movement.

If it is considered desirable to indicate Passive movement also, use another diagram in the same way, stating that it shows Passive movement.

Each sub-division of the arc represents $22\frac{1}{2}$ degrees or $\frac{1}{4}$ of a right angle.

HOW TO PROVIDE *EFFECTIVE* HEALTH ADMINISTRATION IN SMALL (RURAL) MUNICIPALITIES

BY ELZEAR PELLETIER, M.D.

Secretary-Director of the Board of Health of the Province of Quebec

ALTHOUGH provincial officials may be more numerous than municipal officials in the audience, all will frankly admit with me that, of the municipal health authority and of the provincial health authority, the most essential of the two is the municipal. Indeed, the municipal health organization could exist without provincial organization, while the provincial without the municipal end complement could accomplish almost nothing. The secretary of our section, Dr. Baudouin, once properly defined this by calling the municipal authority the "real cell" of the whole fabric.

Thirty years' experience in provincial health work have fully convinced me that we have not, in the rural health authorities as presently constituted, adequate machinery to carry out the work required by the Public Health Act. Seventy-five per cent. of the rural boards of health are either incapable or unwilling to act seriously, and even some small towns hardly make a better showing.

This situation is not peculiar to the province of Quebec.

After the American occupation of Cuba, the government of that island attempted, through the medium of local boards of health, to continue the thorough reform of sanitary conditions started by the Americans; but this system soon proved a failure, and, at one blow, all the local organizations were replaced by a national organization, the Government of Cuba appointing the health officials necessary to carry the work needed in each locality. All such officers stationed in the various municipalities are under the direct control of the Cuban Director-General of Public Health.

In Pennsylvania, we meet another type of organization which, while preserving the existing municipal boards of health, no longer waits after their slowness to carry out the requirements of the

Read at the meeting of the Canadian Medical Association, Montreal, June 15th, 1918.

State laws. The Pennsylvania State Department of Health has over seven hundred agents scattered throughout the State, and these agents make up for the deficiencies of the dilatory municipal boards of health.

As to our sister provinces, I do not believe their experience differs from ours. Indeed, only last week, I unexpectedly put my hand upon an article published in the *American Journal of Public Health*, in 1900, by Dr. P. H. Bryce, who was for twenty years secretary-director of the Ontario Provincial Board of Health. Speaking of Ontario, Dr. Bryce writes: "In a province as old and as municipally advanced as most on this continent, I have for twenty years proved fully the inadequacy of the seven hundred or more local township, town, and village Boards of Health with as medical officer a local practitioner competing with his medical rivals, paid from nothing to \$25.00, \$50.00 or \$100.00 a year for doing mostly nothing."

The cause of the failure of our rural health authorities is that they are raw, untrained material, which cannot be made to realize the importance of their work. Being small municipalities and each maintaining a separate health organization, they have been unable to secure the services of trained officials.

The reorganization of this municipal end of the health service should be undertaken and but professional sanitarians, *i.e.*, "D.P.H. men," should be put in charge, the actual inefficient local boards of health disappearing. Our universities can now supply all the professional sanitarians that would be required, and thus the only question remaining to solve is how to provide sufficiently high salaries to attract good men into this new profession.

As far as the province of Quebec is concerned, the plan I would be disposed to suggest would be the grouping of say twenty municipalities under a physician possessing the diploma in public health, who would give the whole of his time to the constant supervision of their sanitation. The present development of railways, the automobile and the telephone make now a sanitary unit of twenty municipalities one of convenient size. The medical sanitarian would have in each municipality the services of at least one assistant for routine work not requiring necessarily the attendance of the medical sanitarian.

The salary of the medical sanitarian would be fixed by the law and would, together with his travelling expenses, be paid by the municipalities on the pro rata of their population.

How would local autonomy be preserved in such an organization?

Each rural county of the province is formed into a *county municipality* whose municipal councillors are *ex-officio* the mayors of the various municipalities forming part of the county. It may be pointed out, in passing, that the average number of municipalities to a county is twenty.

Thus, should at any future time, a law, following the plan I have suggested to provide for the sanitary reorganization of the province, require the appointment of a county commissioner of health for each county, leaving the appointment in the hands of the county municipality, who would select a physician having the diploma of public health; if, moreover, the said county commissioner of health were required, by the law, to report, at stated times, to the *county municipality* as well as to the Provincial Board of Health, and lastly, if the law provided that the county municipality could dismiss its nominee for cause, after having obtained the consent of the Provincial Board of Health, these provisions would be sufficient, I believe, to guarantee local autonomy to a very reasonable extent. With the exception of the counties of Saguenay and Temiscaming, I believe the plan sketched above would fit the geographical conditions of the province, with perhaps the occasional union of two counties for sanitary purposes under a single county commissioner of health.

With "D.P.H. men" in charge of the municipal end of the health service and with "D.P.H. men" as inspectors at the other or provincial end, we ought to secure very effective and sustained work throughout the province.

I have been told that the plan just advocated would not tally with the somewhat recent departure of having district inspectors on the Provincial Board of Health staff. I do not believe there is anything in that, gentlemen. When, in 1910, the Quebec Government assented to the Provincial Board of Health appointing district inspectors, the government paying their salaries and expenses, it reached the extreme limits of what should be done at the expense of the provincial budget, and therefore what health reorganization remains to be done, must come entirely from the side of the municipal authorities. And then, as the principal subject the Provincial Board of Health had in view when appointing district inspectors was to, through them, bring municipalities to do better work, I fail to see how an argument of the existence of district provincial inspectors could be made against a proposal to improve the municipal health organism.

DISINFECTION AFTER COMMUNICABLE DISEASE

By R. K. ANDERSON, M.D.

Milton, Ont.

I WISH, at the outset, to disclaim any attempt to give something new or original, but will confine myself to what is considered the best means of preventing the spread of communicable disease.

My remarks will refer, more particularly, to the method adopted in the smaller towns, villages, and rural districts where there are no isolation hospitals and no disinfecting stations. I am not a firm believer in the efficacy of disinfection as ordinarily practised. It is usually done by a sanitary inspector, appointed by the council, without any regard to his suitability for such work. Sanitary inspectors should have some training to get the best results.

By disinfection is meant the employment of those means which will destroy contagion and prevent the spread of communicable disease. Any means used should be cheap, prompt, and effective in its action and should not injure furniture or other articles with which it comes in contact.

It must be applied to the bacteria in sufficiently concentrated form and must be left long enough in contact to kill them.

Its aim is to stamp out the disease and all the various means known to science should be employed. Therefore, disinfection should commence with the inception of the disease and should be practiced throughout the whole period of the illness of the patient. The greater the precaution taken at the beginning and during the illness the less the danger and trouble at the end.

Thorough and effective isolation of the patient and his attendant is of prime importance. He should be in a large room, bare of all unnecessary furniture, rugs, curtains, etc., easily shut off from the rest of the house and having an outside entrance if possible. It is desirable that the room have an eastern or southern exposure,

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with ample window space to admit a maximum amount of fresh air and sunlight. Free ventilation is a protection to both patient and nurse.

Arrangements should be made to supply food and other necessities without the attendant leaving the rooms under quarantine. No article or utensil should be taken from the room without being first disinfected or boiled. The nurse should wear only such clothing as can be washed and when leaving the rooms, should wash hands and face and put on outer covering not kept in the sick room.

The floor of the room and furniture, instead of being dry swept or dusted, can be gone over with a cloth wrung out of a solution—5 per cent. of lysol, 10 per cent. of carbolic acid, or 1 to 500 of perchloride of mercury.

Remnants of food, dishes, and table utensils may be boiled. Discharges, whether from the mouth, nose, ears, bowels, or kidneys, should be burned at once or placed in a strong disinfecting solution before removal. Alvine discharges should be well mixed with the solution to ensure success. Chlorinated lime is useful for this purpose.

Blankets, sheets, or clothing should not be hung out in the porch or yard until soaked or well sprinkled with a 20 per cent. solution of formalin.

Pets of all description should be excluded from the sick room.

It is scarcely possible to fix, definitely, the time when a person suffering from a communicable disease ceases to be a danger to the public health. The time fixed by the provincial board is only approximate and should be modified to suit individual cases.

When notice is given by the attending physician that a patient is ready for release from quarantine, the M.O.H. of the municipality should visit the patient and decide for himself and for the public whether or not all danger from infection has passed. This is the duty of the M.O.H. for which the public pay him, little or much as the case may be; still it is his duty, since he accepts the office, as there is little sense in quarantining a case of communicable disease and disinfecting after, if a patient, who is the carrier of that disease is allowed to mingle with the public. It is advisable that this be made obligatory on the part of the M.O.H., then it would free him from the charge of attempting to interfere with the prerogative of the attending physician.

The patient before being released from quarantine, should be given a warm bath, using a brush and biniodide of mercury soap,

paying particular attention to the face, hands, and hair, and then rubbed with alcohol. The hands, face, and hair of the attendant should receive like treatment. Both may then be given a change of garments and the ones in use left in the sick rooms for disinfection.

In the disinfection of the room and furniture, hot water, soap, and the scrubbing brush, thoroughly used, along with free æration and exposure to sunlight is more efficient than either liquid or gaseous disinfection.

Boiling is the best means for treating all fabrics and utensils not injured by such process. These means alone, properly used, will free most rooms from contagion. Liquid disinfectants, however, make a valuable adjunct and may be used in the scrubbing water.

The simplest and probably the most efficient method for gaseous disinfection of rooms is by formic aldehyde and permanganate of potash.

Sixteen (16) ounces of a 40 per cent. aqueous solution of formic aldehyde and eight ounces of permanganate of potash are used for every 1000 cubic feet of air space.

The room is made as nearly air tight as possible, bedding and clothing are hung over chairs or on lines across the room, books opened and stood on end, closet doors and dresser drawers opened so as to be freely exposed to the fumes. Woollen outer clothing and bedding can be freely sprinkled with a 20 per cent. solution of formalin, and it is desirable to sprinkle the floor and walls with the same solution or with water.

Vessels containing boiling water from which steam will rise, may be placed about the room if there should be no better way of maintaining the necessary humidity of the atmosphere.

The temperature of the room should be not less than 65 degrees.

In the centre, place a tub containing about two inches of water and in this tub put a large galvanized iron pail to hold the ingredients.

Place in this pail the permanganate of potash mixed with an equal quantity of sand and pour over it the formic aldehyde solution. The operator should now make his exit expeditiously. The sand will give him a little more time, and it prevents the oxide of manganese which is formed from inhibiting some of the action of the formic aldehyde. It also prevents the violent ebullition and spilling over of the ingredients.

The room should be left closed for six hours and then freely

ventilated. The remaining gas can be neutralized by a sprinkling of ammonia water if desired.

Disinfection by formaldehyde gas is superficial at best, and, should be followed by a thorough scrubbing with hot water, soap, and brush, including in this process all woodwork and furniture not injured by such treatment. Disinfectants may be used in the water—lysol, 2 per cent., carbolic 5 per cent., or formalin, 10 per cent. Perchloride of mercury should not be used with soap. Furniture injured by scrubbing may be mopped over with one of the above solutions.

The walls may be repapered or limewashed, but this is immaterial.

While preparing this paper, I wrote to the M.O.H. of Buffalo, Chicago, Detroit, and Winnipeg, also to Parke Davis & Coy., and the *American Journal of Clinical Medicine*, asking what method they recommended and if they placed reliance on chemical disinfection.

I acknowledge my indebtedness to all of these gentlemen for their prompt and courteous replies.

They are very much in accord that isolation and hospitalization of all cases is of first importance in preventing the spread of communicable diseases; that the free use of hot water, soap, and the scrubbing brush, along with fresh air and sunlight is the best method of destroying contagion, and that liquid disinfection is more valuable than gaseous disinfection.

THE CONTROL OF INFLUENZA IN ONTARIO

BY JOHN W. S. McCULLOUGH, M.D.

Chief Officer of Ontario Provincial Board of Health

IN Ontario influenza is not required by law to be reported, placarded or quarantined, and does not come under the regulations regarding communicable disease except that, by a recent Order-in-council, land and unoccupied buildings may be taken summarily by a board of health for hospital purposes.

With respect to the closing of schools, churches, theatres and other public assemblages, each Medical Officer of Health or Local Board of Health has power to close such places if it seems desirable. The matter of placarding, and quarantining for this effecton is regarded by the Provincial Board of Health of Ontario as being impracticable. The Board does not think such a law could be satisfactorily enforced for the reason that before the necessary measures (inspection, placarding, etc.) could be taken in respect to the thousands of homes, a great number of the cases would be well and the intolerable situation of keeping comparatively well persons in large numbers tied up would ensue. Under such a regulation many people with colds would be improperly quarantined, and in short the operation of the law would, as it has been in many of the States to the south of us, be a dead letter. While the Local Board has the power to close schools, churches, theatres, etc., during epidemics of this kind, the utility of this measure of prevention is obviously limited when departmental stores, business places, street and railway cars are allowed to carry on business as usual. Where a well-equipped medical inspection of schools is in operation as in Toronto, there seems to be no doubt that the children would be better at school than running the streets and spending their time (as they have in large numbers been doing in Toronto) in the shops where the warmth and attractions are better than many of them have at home.

Before Ontario had any appreciable number of cases the Board distributed to every physician in the province a circular giving the latest information in respect to the disease. This was

succeeded by a circular to Medical Officers of Health pointing out the law and advising precautions to be taken. Finally a second circular was issued to all physicians giving information as to the character of the disease, methods of treatment, etc. The press also was largely used for the dissemination of advice to the public.

Realizing the probable necessity for nursing help throughout the province the Board organized the Ontario Emergency Volunteer Nursing Auxiliary for the training of V.A.D.'s and established a course of lectures in Toronto. Branches were formed in many of the cities and towns, some of which were supplied with lecturers, and the voluntary nurses (called Sisters of Service), were supplied in large numbers to families in need of help. In Toronto the Auxiliary was able to furnish nursing help to some one thousand families. Similar work was done in many other places such as Hamilton, St. Catharines, London, Collingwood, Barrie, etc. The Auxiliary supplied both trained and voluntary nurses to many outside points, and endeavoured, with a large measure of success, to supply medical assistance to communities where the physicians were overworked or where one or more had lost his life in the course of the epidemic.

It is estimated that there were at least 40,000 to 50,000 cases of influenza in Ontario and the number of deaths is approximately 3,500.

Strains of bacteria were procured from Boston and New York and a prophylactic vaccine prepared both by the Connaught Laboratories of the University of Toronto, and the Laboratories of the Provincial Board of Health. This vaccine has been supplied very freely to the public all over Ontario and to some extent throughout Canada. The Board in issuing this vaccine took occasion to point out that while its use rested upon a rational and scientific basis, no results could be promised with certainty. The limited reports received, however, indicate that it has been of some value in prevention of this disease.

INFORMATION *re* INFLUENZA EPIDEMIC

Cities	Population	Deaths from Influenza and Complications, chiefly Pneumonia	Death rate per 100,000 Population
Cities in Canada			
Fort William.....	18,850	45	238
Sault Ste. Marie.....	12,829	41	319
Ottawa.....	104,000	570	548
Port Arthur.....	15,224	20	131
Windsor.....	30,000	32	106
Kingston.....	22,265	145	644
London.....	57,301	187	326
Toronto.....	490,000	1,600	327
St. John, N.B.....	42,511	126	296
Winnipeg, Man.....	183,595	388	211
Montreal, P.Q.....	640,000	3,128	489
Halifax, N.S.....	46,610	153	329
Hamilton.....	104,491	244	233
Cities in United States			
Boston.....	670,585	2,084	321
Pittsburgh.....	533,905	3,894	721
Philadelphia.....	1,549,008	12,687	819
Washington.....	331,069	1,564	501
*Camp Sherman, Ohio.	33,000	842	2,551
New York.....	5,737,492	22,950	400

* In this camp, out of 2,001 cases of pneumonia following influenza, 842, or over 41 per cent., died.

THE EPIDEMIC OF INFLUENZA

BY S. BOUCHER, M.D.

Director of the Department of Health of the City of Montreal

INFLUENZA made its appearance in Montreal during the last days of September and in a very short time had spread all over the city. From day to day the newspapers published the number of cases and of deaths reported and the total was, on Thursday, November 7th, 17,252 cases and 3,028 deaths. The number of deaths is correct, because no funeral or transportation of bodies outside the city can be made without a permit from the City Hall, but the same thing cannot be said of the reporting of cases.

At first the declaration of cases was not compulsory and the figures of the first days must necessarily be very incorrect. Even after the declaration had been made obligatory at the beginning of the second week in October, many doctors either neglected to report all their cases or, through press of work, reported only a part of those they attended. For this reason, it is quite impossible to say that the above mentioned number of 17,252 cases is correct, or how far it may be from the real number of cases.

Another reason why the number of declarations may be far from being accurate is that the actual figures would give a death rate far too high, even when taking into account the intensity of the disease and the fact that the bad weather led to fatal pulmonary complications.

We are thus led to take the number of deaths rather than the number of declarations as a criterion. From the figures we publish below, it will be seen that the climax of the disease was during the week beginning October 13th:

	Reported	Deaths
October 1.....	17	11
October 2.....	3	13
October 3.....	7	10
October 4.....	22	12
October 5.....	111	26
October 6.....	21	18
October 7.....	111	27

	Reported	Deaths
October 8.....	119	27
October 9.....	132	23
October 10.....	398	59
October 11.....	202	51
October 12.....	357	68
October 13.....	367	43
October 14.....	378	165
October 15.....	1,868	153
October 16.....	1,748	162
October 17.....	1,300	166
October 18.....	750	163
October 19.....	617	195
October 20.....	40	113
October 21.....	1,633	201
October 22.....	1,063	155
October 23.....	907	133
October 24.....	865	139
October 25.....	989	125
October 26.....	487	94
October 27.....	19	73
October 28.....	1,148	142
October 29.....	336	69
October 30.....	151	77
October 31.....	139	55
November 1.....	161	43
November 2.....	116	58
November 3.....	16	35
November 4.....	154	46
November 5.....	103	23
November 6.....	53	24
Delayed cases.....	171	...
November 7.....	4	31
Delayed cases.....	69	..
Totals.....	17,252	3,028

Concerning these figures, the remark should be made that the high figures of the Mondays are partly to be allotted to the preceding Sunday, many physicians sending their reports by mail on the Monday for the day before.

The disease has decreased both in rapidity and in virulence.

and date of writing, November 7th, it will be seen that Montreal is now, barring a possible but pretty improbable recrudescence, on a fair way to its normal death rate.

From the beginning, the Department of Health took energetic means of combating the disease. When there were still only a few cases declared, advice in the form of posters and circulars were distributed to the press, the schools, and the homes broadcast.

On October 8th, an emergency meeting of the Board of Health was called at the City Hall and resolutions were adopted calling for the immediate closing of all places of public meeting, such as schools, theatres, dance halls, moving picture houses, concert halls, etc. The military authorities were called upon to confine the soldiers in the barracks. The clergy were requested to reduce to a minimum their church functions. The stores were ordered to close at 4 p.m., in order to decrease the congestion in tramcars.

On October 10th, a new Board of Health composed of physicians was named to replace the old Board which was composed of laymen. The Board immediately confirmed the above mentioned decisions and further decreed that all churches should be closed on Sundays, that stores, with the exceptions of those selling necessities of life, should close at 4 p.m., that all places of amusement, whether in halls or out of doors, should be closed. Several rules were adopted concerning boarding schools, public offices, hospitals, banks, Courts of Justice, tramcars, the transportation of bodies of persons dead from influenza, etc.

At the very beginning of the epidemic, steps had been taken to provide an emergency hospital for influenza patients too poor or friendless to be treated at home or unable to get a place in the general hospitals.

The Meurling Refuge was fitted up as a hospital with 225 beds. This was soon found to be insufficient and the following emergency hospitals were opened:

Moreau Street Civic Hospital, 60 beds; St. Joseph's School, 49 beds; St. Justine (for children), 50 beds; St. Arsène Orphanage (for boys), 50 beds; St. Clement's School, 75 beds; the Grenadier Guards Armoury (loaned by the military authorities), 75 beds; one hospital for the Chinese, 12 beds.

The general hospitals pooled their resources with the civic hospitals, and patients were sent to the Royal Victoria Hospital,

Montreal General Hospital, Hôtel Dieu, Notre Dame Hospital, Alexandra Hospital, St. Paul Hospital, and the Western Hospital.

The staffs of the emergency hospitals were formed of the physicians and nurses in the employ of the city, with the help of the Roman Catholic communities of Nuns and Brothers, both from teaching and from charitable institutions, the former as nurses and the latter as orderlies. These communities were:

The Grey Nuns, the Nuns of the Holy Cross, of St. Ann, of the Holy Names of Jesus and Mary, of the Congregation of Notre Dame, of the Providence, of Hope, of the Immaculate Conception, les Filles de la Sagesse; Brothers of the following orders: Christian Schools, St. Gabriel, Christian Instruction.

The co-operation was enlisted of the following organizations: St. Vincent de Paul Society (with their eighty sections), Société Catholique de Protection et de Renseignement, Victorian Order of Nurses, Canadian Red Cross (English and French sections), Imperial Daughters of the Empire, Montreal Day Nursery, Emergency Nursery, Patriotic Fund, Jewish Federation of Charities, Melville Social Service, Red Mogen Dovid, Canadian Belgian Musical and Dramatic Club, Charity Organization Society, Iverley Settlement, University Settlement, Soldiers' Wives' League, Catholic Social Service Guild, Irish Protestant Benevolent Society, etc.

Besides giving help in the emergency hospitals, the Roman Catholic communities of Brothers and Nuns also gave splendid service in visiting families and giving aid of all kinds to the poor and the destitute.

In order to co-ordinate all these efforts, as well as those of physicians and nurses willing to help their confrères who had too many patients on their hands, a bureau was established at the City Hall Annex in charge of a competent civic employee whose work soon had the desired effect in directing help to the poor who could not get medical attendance.

A similar bureau on a much wider scale was established up-town where a number of ladies divided in a French and an English section, also did excellent work in procuring medical attendance, food, fuel, clothing, etc., for the poor.

The necessary co-operation between the hospitals, both civic and general, was established through a Hospitals Commission who worked untiringly during the peak of the epidemic, directing the sick to the hospitals nearest their residence.

The police and firemen forces generously aided in this difficult question of helping the poor by undertaking to carry food

and fuel to the homes of those who could not go out to get these necessities or who could not afford to pay for them.

Although all this organization was extemporised, it worked out harmoniously and smoothly. It was inevitable that at first there would be some delays, but the staffs of the several emergency hospitals soon settled down to the routine and eventually all was in splendid order. During the first days there was some congestion in the admittance to the hospitals and some criticism was brought against the management of the Meurling Hospital because it did not very promptly fill its beds.

This criticism was most unjust, inasmuch as it remedied nothing, but it soon died out and the Hospitals Commission, which was appointed upon its representation, admitted that the management had done splendidly. The opening of the other emergency hospitals and the pooling of the resources of the general hospitals through a committee of ambulance service composed of Dr. Dunstan Gray, Dr. F. X. Lessard, of Notre Dame Hospital, and Mr. Webster, of the Royal Victoria Hospital, had the desired effect of abating the congestion.

Thanks to the officer commanding the A.M.S.C. of the 4th District, a number of military medical men were available for the emergency hospitals and rendered most valuable help.

The accompanying charts show the course of the disease from October 1st and the organization of the fight against it. They will be of much interest to the reader because they show at a glance what was done and what was the results of the combined efforts.

The Board of Health whose untiring work in seconding the efforts of the writer was of inestimable value, is composed of Mr. E. R. Decary, president of the Administrative Commission, chairman; Dr. David J. Evans, vice-chairman; Dr. Horst Oertel, Dr. L. de L. Harwood, Dr. J. E. Dubé, Mr. Beaudry Leman, His Worship the Mayor being also a member ex-officio. Their energy in dealing with a most serious and difficult situation, their devotion to the grave responsibilities they had to shoulder have been most marked. The writer is especially glad to tender to Mr. Decary his grateful acknowledgement of the most valuable support he got from him in his dual capacity as president of the Administrative Commission and of chairman of the Board of Health.

POLYA'S METHOD OF ANASTOMOSING THE PROXIMAL GASTRIC STUMP WITH THE JEJUNUM

BY E. M. VON EBERTS, M.D.

Surgeon to the Montreal General Hospital

THE hope that cancer of the stomach might be permanently cured by means of gastrectomy has in recent years been realized in many instances. More numerous are the cases in which life has been materially prolonged, and the procedure of gastrectomy has now been placed upon such a basis of technical skill that the rooted disbelief in its value, either palliative or curative, is being replaced by a feeling of hopefulness on the part of the general practitioner, with the result that the number of cases submitting to operation is steadily growing.

Later results are what we find them to be for three reasons: (1) the earlier diagnosis of cancer; (2) the increased frequency with which pylorotomy is performed upon cases which are diagnosed clinically as ulcer, in which subsequently the presence of secondary carcinomatous changes is demonstrated; and (3) the progressive improvement in surgical technique, which has enabled surgeons to include in the class of operable cases many of those which previously would have been rejected as inoperable, and to remove with constantly diminishing danger to life increasing areas of the stomach wall.

Before Polya demonstrated the practicability of anastomosing the proximal gastric stump, throughout its whole length, directly with the jejunum, there was a definite limit to the extent of stomach resection, because sufficient stomach wall had to be left for the establishment of a gastro-jejunostomy (Billroth method No. 2). This restriction was in part responsible for the frequency of recurrence. Among the technical defects of the method should be mentioned insufficiency in the gastro-jejunal anastomosis, the danger of tension and kinking in the anastomotic loop, and of necrosis in

Read before the Montreal Medico-Chirurgical Society, March 1st, 1918.

the suture line, arising from the defective blood supply on the stomach side. These various causes of failure were met by Polya, and a thorough trial of his method confirms his original contentions: (1) that this procedure of gastro-jejunostomy is easily performed; (2) that union between the stomach and the intestine is effected without tension; (3) that necrosis or leakage is unlikely to occur; (4) that the mechanical conditions for the emptying of the stomach are as favourable as possible, because the opening is broad and lies at the aboral end of the gastric stump; and (5) that the operation can be done much more quickly than the former procedure, which, owing to its lengthiness, had often to be done in two stages.

According to Polya's method, the jejunal loop is brought up through a slit in the mesocolon. By this means freedom of action is secured. At the conclusion of the anastomotic suture, the stump of the stomach is drawn down through the opening in the mesocolon, and the edges of the mesocolon are secured to it. If a high resection is performed, this latter stage may present serious difficulties. In such cases the small bowel should be brought up in front of the transverse colon, and the anastomosis with the jejunum performed at a distance of from fifteen to eighteen inches from its origin. By this method, as shown by Balfour, the death rate has been very greatly reduced.

When Polya published his article in 1911, he had tried his method in six cases. Three of the patients died within from twenty-four to forty-eight hours after operation; and a fourth, from erysipelas and duodenal fistula, on the forty-ninth day after operation. The other two left the hospital cured.

In the three cases here reported Polya's original procedure was followed in each instance. In none did vomiting occur after operation, and all three patients left the hospital free from symptoms.

Case 1. T. T., aged forty-two, a Russian labourer, was admitted to the Montreal General Hospital on May 18th, 1917, complaining of pain in the stomach and vomiting.

The personal and family histories were negative.

Although admitting that he had suffered from attacks of indigestion for ten or twelve years, the patient stated that his present illness began eight months ago, with pain in the epigastrium, which came on from two to four hours after meals and radiated to the right shoulder and back. More recently there had been vomiting. The pain was relieved by vomiting and by taking food. The patient had never noticed blood in the vomitus or stools. The appetite was poor. There had been a loss of thirty pounds in

weight during the preceding eight months. The patient was pale and poorly nourished. He had almost constantly a feeling of distress or pain in the epigastrium. On examination a distinct mass was felt in the region of the pylorus.

Test Meal. 300 c.c. given. In seventy minutes 270 c.c. withdrawn. Reaction, acid; free HCl absent; total acidity, 26; no occult blood.

A *bismuth series* taken by Dr. Wilkins showed the following:

"Meal enters stomach without feature. Outline of stomach regular except at pyloric area, where defect is visible. Duodenum does not form. Tenderness present over pylorus. Large, actively contracting stomach. At six hours half of meal is still present.

Summary. There is a lesion at the pylorus. The general action and appearance of the stomach would suggest ulcer rather than carcinoma."

While the history and radiographic findings pointed to the probability of a chronic peptic ulcer, the presence of a mass, the true anorexia, and the absence of free hydrochloric in the gastric secretion, suggested the possibility of carcinoma.

Operation. On May 23rd, 1917, under ether anaesthesia, an incision was made through the right rectus, exposing a large, indurated, inflammatory mass, occupying the greater part of the lesser curvature of the stomach. There were numerous enlarged, soft glands in the gastro-hepatic omentum and beneath the pyloric ring. The fundal portion of the stomach was very greatly dilated.

After preliminary ligation of the vessels, the pylorus was divided immediately distal to the ring, and the cut edges were cauterized. The duodenum was closed with continuous through-and-through suture of chromicized gut, followed by musculo-serous suture with linen. The stump was then buried in the capsule of the pancreas. As much of the fundal portion of the stomach as possible was then withdrawn from the wound; the jejunum was passed upward through a rent in the transverse mesocolon, and the posterior sero-muscular suture of the stomach to the jejunum was inserted. The stomach was then divided with cautery, distal to the clamp. The jejunum was opened, and the suture of the anastomosis completed in the usual way, using a chromicized gut for the through-and-through mucous stitch. After the removal of the clamps, the stump of the stomach was drawn through the rent in the mesocolon, and the mesocolon stitched to the stomach 1 cm. above the suture line. Although a very large resection of the stomach was carried out, there still remained, owing to its hypertrophy and dilatation, a large

fundal pouch, and no difficulty whatever was experienced in suturing the mesocolon above the line of anastomosis.

Following the operation, hypodermics of strychnine (grs. 1-40) and camphor (gr. 1) were administered every four hours. Six ounce rectal salines, containing 5 per cent. dextrose, were given at similar intervals. There was no vomiting. Lenhartz diet was begun on the fifth day, and convalescence was uninterrupted.

On June 21st, 1917, Dr. Wilkins took a second bismuth series, with the following result:

"Meal passes down oesophagus without feature. Stomach is pyramidal in shape apparently about half of distal portion having been excised. Meal leaves stomach quickly. At one and one-half hours less than one-eighth of meal is present. At three hours the quantity is practically unchanged and the meal is entering the large bowel. At six hours the stomach is empty and practically the entire meal is in the large bowel."

Pathological report. "Adeno-carcinoma. The gross appearance is suggestive of old healed peptic ulcer with malignancy superimposed."

The patient was discharged on June 28th, 1917.

On December 3rd, 1917, he was re-admitted. His general condition showed a marked improvement, and there had evidently been a gain in weight. The abdomen was soft, without palpable mass or visible peristalsis. The patient was free from pain, had a good appetite, and could take anything in the way of ordinary diet. In September, 1917, he had had an attack of burning pain in the epigastrium, which bore no relation to the taking of food and was not present at night. There had been no vomiting.

Test meal. 300 c.c. given. In one hour a residue of 120 c.c. withdrawn. Free HCl., 48; combined acid, 24; total acidity, 72.

An x-ray series was taken by Dr. Wilkins on December 4th, 1917.

"Meal enters stomach in normal manner and commences to leave early by gastro-enterostomy opening. At three hours the stomach is empty, head of column being at splenic flexure. At six hours the entire meal is in large bowel."

Case 2. W. C., aged thirty-five, a sailor, was admitted to the Montreal General Hospital on September 4th, 1917, complaining of epigastric pain, nausea, and vomiting.

The family history was negative.

Personal history. For the past eighteen years the patient had

been doing manual labour. For eight or ten years he had used alcohol and tobacco to excess. At twenty-five he had a syphilitic infection, which was treated at that time for two months with mercury. More recently he had been treated with salvarsan. At twenty-seven he had gonorrhœa.

Present illness. In April, 1913, he first noticed pain in the epigastrium, occurring directly after eating and lasting for about one hour. The appetite remained good, and there was no loss of weight. Between October, 1913, and April, 1914, the patient was free from all symptoms. On the latter date the symptoms which had been present in the first attack returned with increased severity. Practically the same periods of discomfort, alternating with freedom from all symptoms, recurred until 1917. In April, 1917, pain in the epigastrium returned with much more severity. There was a severe burning sensation after eating, and tenderness over the epigastrium. The patient was relieved by taking soda, but not by taking more food. In June, 1917, vomiting occurred for the first time and subsequently about once a day. As it invariably relieved the pain, the patient learned to induce it. Blood was never noticed in the vomitus or in the stools. Although his appetite was good, the patient refrained from eating, because he feared the pain which followed. With this restriction in diet there was between June and September, 1917, a loss of about thirty-five pounds in weight.

Examination on admission to the surgical service. October 7th, 1917. The patient was very thin and had apparently lost a great deal of weight. All the teeth were either crowned or filled. The thoracic organs were normal. There was no glandular enlargement. The abdomen was scaphoid, with well marked tenderness in the epigastrium and in the regions of the pylorus. There was no palpable tumour. The bowels were constipated.

Ewald's test meal. 300 c.c. given. In one hour 200 c.c. withdrawn. Total acidity, 25; free HCl absent; no occult blood.

There was a triple Wassermann reaction.

An x-ray series by Dr. Wilkins showed the following:

"Meal enters stomach without feature. Stomach rather small, atonic. Tenderness present in epigastrium. Lower border at umbilicus. At one and one-half hour about one quarter of meal remains. At three hours the quantity is unchanged. At six hours the quantity is slightly less and about one half of meal has entered the large bowel.

Summary. The presence of tenderness, associated with six-hour retention, would suggest pyloric ulcer."

Operation. On October 10th, 1917, an incision was made through the right rectus, exposing a small stomach, with an area of marked induration astride the lesser curvature at the junction of the vertical and horizontal portions of the stomach. There were enlarged soft glands in the gastro-hepatic omentum. It was at first decided to excise the ulcer. After the removal of the indurated area, however, it was found that, at the margin of the ulcer, there were numerous friable papillomatous masses, very suggestive of malignancy; that there was extensive superficial ulceration of the whole of the pyloric portion of the stomach; and that at the pyloric ring a second chronic ulcer was surrounded by similar papillomatous growths. It was therefore decided to do a gastrectomy. The ordinary procedure was followed in closing the stump of the duodenum. The stomach was then drawn down as far as possible, and the whole of the fundal portion removed with the exception of a small pouch. Anastomosis was then effected between the stump of the stomach and the lateral wall of the jejunum, which was brought up through a rent in the transverse mesocolon. In this case, contrary to the experience in Case 1, there was some difficulty in suturing the margins of the divided mesocolon to the stump of the stomach, and one might better have followed the more recent practice of bringing the jejunum up to the stomach stump in front of the transverse mesocolon.

Pathological report. "Gastritis polyposa (precancerous)."

Convalescence was uneventful. The wasting was very profound for the first ten days after operation, but there was no vomiting. The usual post-operative measures were followed. Lennhartz diet was begun on the fourth day.

On November 1st, 1917, a further x-ray examination was made by Dr. Wilkins, who reported as follows:

"Meal passes down œsophagus without feature, and leaves very rapidly by the gastro-enterostomy opening. Capacity of the stomach extremely small. The stomach is apparently empty within fifteen minutes. At one and one-half hours the head of column is at sigmoid. At six hours there is no change of importance

Summary. The feature of note in this case is the extreme rapidity with which the stomach empties."

The patient was discharged on November 5th, 1917.

Case 3. X. C., a farm labourer, was admitted to the surgical service of the Montreal General Hospital on October 30th, 1917, complaining of epigastric pain and vomiting.

The family and personal histories were negative.

In 1910 the patient began to be troubled with pain, which came on about two hours after meals, starting in the epigastrium and radiating to the back. For the past four years there had been almost daily vomiting. Between 1910 and 1917 the patient had lost about fifteen pounds in weight.

On admission he was found to be well nourished. The teeth were in good condition. The bowels were regular. General examination was negative. On deep palpation there was tenderness beneath the left costal arch.

After admission the patient complained daily of pain in the epigastrium, coming on about two hours after the taking of food. Vomiting usually occurred late each afternoon.

A bismuth series by Dr. Wilkins on October 26th, 1917, showed the following conditions:

"Meal enters stomach without feature. Normal, tonic, vertical stomach, regular in outline. Lower border below umbilicus. No tenderness present on pressure. Pain, when present, is said to be in epigastrium. At one and one-half hours about one half of meal is present. At six hours the quantity is unchanged. The duodenum forms well, but at the pyloric orifice is a slight protrusion which is indicative of ulcer.

Summary. The marked six-hour retention and the presence of irregularity in pyloric orifice is indicative of ulcer."

Test meal. 300 c.c. given. In one hour 275 c.c. withdrawn. Free HCl, 46; total acidity, 69; no occult blood; no sarcinae or Boas Oppler bacilli.

Operation. On November 2nd, 1917, an incision was made through the right upper rectus. The stomach was withdrawn from the abdomen with difficulty. A large saddle-shaped ulcer occupying the lesser curvature and several small ulcers involving the greater part of the pyloric portion of the stomach were found. Owing to the extent of the disease it was decided to do a complete pylorotomy. There were no enlarged lymphatic glands. After closure of the duodenal stump and complete removal of the pyloric portion of the stomach, anastomosis between the gastric stump and the jejunum was effected by Polya's method.

Lenhartz diet was begun on the fourth day of convalescence.

There was no vomiting after operation. The patient was discharged on November 24th, 1917, free from symptoms.

Pathological report. Chronic peptic ulcer.

BIBLIOGRAPHY

1. POLYA.—*Zur Stumpfersorgung nach Magenresektion. Zentralblatt für Chirurgie*, 1911, No. 26, page 892.
 2. BALFOUR.—“Restoration of Gastro-intestinal Continuity by means of Anticolic Gastrojejunostomy following Partial Gastrectomy for Cancer of the Pyloric End of the Stomach.” *Surgery, Gynecology and Obstetrics*, November, 1917.
 3. BILLROTH.—Cited by Balfour.
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THE *British Medical Journal* finds that the war has caused a marked decline in the proportion of suicides to the population. Among males the rate per million was 157 in the ten years ending 1910, 151 in 1914 and 105 in 1915. In 1916 it was a little higher, 111. The rate of suicides among women showed a fall from forty-seven in the years 1901-10 to forty-five in 1914 and 1915 and thirty-eight in 1916. The greatest reduction among men was at the ages of forty-five to sixty-five whereas for women of later middle age the rate had not fallen at once. The reason for this according to the Journal, is the increased employment opened up by the war. Fresh interests and diversions have given the mind a new outlook on life.

A SHORT NOTE ON IRREGULARITIES OF THE HEART, IN ASSOCIATION WITH VISCEROPTOSIS

BY WILLIAM S. MORROW, M.D.

Montreal

IT is a matter of common knowledge that visceroptosis is usually associated with a tendency to neurasthenia and that among the symptoms of neurasthenia functional disorders of the heart hold a prominent place. In one sense these statements cover all I have to say to you to-night.

It has been my experience, however, to be consulted about many cases of arrhythmia by the sufferers themselves or by their medical attendants, in whom other symptoms of neurasthenia were slight and in whom a downward displacement of the heart had been overlooked.

For this reason I thought it well to draw the attention of the Society to what I believe to be a matter of some importance. The symptoms complained of in these cases have been frequent or violent beating of the heart on slight exertion, continuing for a few minutes, or hours, or days. The pulse has sometimes been simply frequent, sometimes marked by extra systoles and sometimes has shown the absolute irregularity characteristic of auricular fibrillation. In none of the cases under consideration have there been definite signs of organic disease, but it has not been considered necessary to exclude any on account of a slight dilatation alone, as some degree of dilatation is a very common result of functional disorder.

A reasonable attempt has been made to exclude other causes of disturbed heart action, such as physical or emotional strain, hyperthyroidism, indigestion, alcohol, tobacco, and other excesses.

In a considerable number of cases the above and similar causes do not seem to supply a satisfactory explanation and the outstanding features seem to be a frequent or irregular heart action following some slight exertion with displacement of the heart downwards

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one or more spaces. Where search has been made, there has usually been observed some lack of tone in the abdominal muscles and sometimes other indications of lowered vitality.

Like many men in practice, my case notes are lacking in detail for purposes of paper writing, as they only record the more important positive findings. They are also numerically few, as for every ten cases seen, I have only notes for two or three. With this word of apology I will refer to a few cases very briefly.

Case 1. Seen a couple of months ago, is described in my notes in the proverbial ten words of the laconic telegram, but gives the main points in a nutshell: heart low, diffuse apex beat, history of pain and palpitation.

Case 2. Seen May 13th, 1917. Young man, aged twenty-one. Heart beats fast on slight exertion. Rate went up to 170 on one occasion after walking up a moderate hill. History of so-called rheumatic pains without fever. Pulse, lying down, 82, regular. Heart: relative dulness upper margin of fifth rib; absolute dulness upper margin of sixth; transverse, 5 cm. to right and 8 cm. to left. Sounds normal, except for slight accentuation of pulmonary second. His tonsils were unhealthy looking and he had them removed the following month. After this he spent the summer in the country, largely in the open air and took lots of exercise. He wore a wide belt and took a tonic. In December he had improved in every way. He looked and felt well and his muscular development had improved remarkably. His pectoral muscles were so thick that it was not very easy to determine the upper level of the cardiac dulness, but it seemed approximately normal, and his heart was not troubling him as before.

Case 3. Man of forty-six, seen November 21st, 1916. Complained of palpitation of heart on exertion, and indigestion. Pulse 60, occasional extra systoles. Heart displaced downwards two ribs.

Case 4. Woman about thirty-five, seen December 8th, 1914. Heart thumps whenever she exerts herself. Sometimes has pain down left arm to elbow. Symptoms chiefly after sudden effort or on going up hill. Uneasy feelings about heart when she lies down. Suffers with flatulence and painful menstruation. Heart low and displaced a little to the left. Otherwise normal.

Case 5. Seen only twelve days ago. A man, aged thirty-nine, taken with violent rapid heart action while playing indoor golf. I did not see him till the next morning when his pulse was absolutely irregular and about 100 per minute. On examining him lying down, I did not detect any displacement of the heart, but when he came

to my office a few days later, I examined him in the erect position, and his heart was at least a rib low. In the meantime his heart action had returned to normal.

I have some hesitation in including this case, as he had suffered from hyperthyroidism some years ago until relieved by an operation performed by Dr. von Eberts. It is, however, but rarely that we can trace a pathological condition to a single cause. We more frequently have one if not more predisposing causes at work in addition to the more obvious exciting cause.

In looking back over the few cases I have referred to you may have observed that one suffered from indigestion, one from painful menstruation, and one from unhealthy tonsils. These circumstances may have contributed in some degree to the causation of the disturbed heart action; but the fact that displacement of the heart is so common in cases of disturbed function is strongly suggestive of its having some causal relation thereto.

I have not dwelt on the abdominal indications of visceroptosis, but there have usually been some signs present where they have been looked for. For instance, in a case very similar to the last described, and fresh in my memory because it was only seen last week, not only was the heart a rib or more lower than normal but it was very easy to press the hands deep into the abdomen and feel the right kidney descend with every breath. I may add that the patient was a middle aged man.

Every case of functional disturbance of the heart is not due to ptosis, but it is I believe a factor of sufficient importance to be worth looking for. On the other hand, cardiopptosis may be due to various causes and is not always followed by functional disturbance of the heart. Stacey Wilson gives among the causes of downward displacement: "the accumulation of fluid in the pleural cavities, the presence of an abnormal amount of blood in the thorax, and severe cases of mitral stenosis and emphysema," but with a little care, these cases are not likely to be confused with ones like those I have described.

In confirmation of the fact that the heart is often displaced downwards, let me quote Sir Clifford Albutt, writing on functional disorders of the heart in his "System of Medicine". He says: "The heart itself may drop considerably." August Hoffman, de la Camp, and Rummo, were among the first to describe cases of cardiopptosis. Wenkebach has shown by skiagrams, and otherwise, that in extreme lapse of tone with flaccid abdominal walls the heart may dangle

from its own vessels (cor pendulum) and may even tug at the trachea on each systole."

It is easy to understand how in such cases the circulation through the veins may be interfered with and also how the cardiac nerves may be subjected to tension.

In my experience, many cases such as I have described do well. In making a prognosis one has to consider the degree of visceroptosis, and also the amount of neurasthenia present. In the slighter cases it is my custom to prescribe a wide canvas belt such as athletes wear, in addition to ordinary braces, not instead of them. I also give a sedative mixture, such as belladonna and bromides in combination. In more pronounced cases it may be necessary to have a special abdominal belt made. When the heart symptoms have subsided it is often wise to prescribe exercises in the open air and tonics.

In many cases the symptoms disappear in a few hours and may not return at all or only after a long interval. In other cases the symptoms return after any physical or nervous strain and we may have all degrees of severity up to troublesome attacks of paroxysmal tachycardia.

AN interesting fact about the radium content of sea salt has been established. Samples of sea salt, collected during a recent voyage in the Pacific and sub-Arctic regions, have been examined for their radium content. The amount of radium was found to be negligibly small compared with the values that have been found by others collected near land, and this result is in accordance with the prevailing view that the radium content of sea salt diminishes with increase of distance from land.

Case Reports

BRIEF CASE REPORTS FROM THE EAR, NOSE AND THROAT CLINICS OF THE WESTERN HOSPITAL, MONTREAL

BY GEORGE T. ROSS, M.D., D.C.L.

I. FRONTAL SINUSITIS WITH ORBITAL COMPLICATION

MRS. C. D., aged fifty-two, was admitted to the Western Hospital on March 6th, 1915, complaining of severe pain over the left frontal sinus and oedema of all the left orbital cellular tissues and eyelids, making it impossible to open the lids by voluntary effort. There was not much chemosis of the conjunctiva. Temperature 101°, pulse 100. A history was given of so-called neuralgic attacks in this region for the previous six months, which were relieved from time to time by ordinary measures. The nose showed marked deviation of the nasal septum with convexity to the left which interfered with drainage.

At operation I made the usual circular incision in the orbit, beginning at a point corresponding to the pulley of the superior oblique muscle, to avoid the annoying diplopia which so often follows the radical Killian operation. The floor of the frontal sinus was found eroded and discharging pus into the orbital tissues below. By enlarging the floor opening, easy access was obtained to the entire left sinus, making it unnecessary to remove any bone above the supra-orbital ridge. The naso-frontal duct was found blocked by the swollen tissues, but the lachrymal duct and sac were unaffected. The usual toilet of this operation was completed, leaving a small drain at the inner orbital angle, as well as a drain into the nares, after enlarging the obstructed duct. I reserved opening the ethmoid cells until the later necessary operation to straighten the deflected septum, when the work could be done intranasally under local anæsthesia. Conditions being favourable, about ten days later I did the sub-mucous operation, opened the anterior ethmoid cells intranasally and removed the left naso-antral wall to drain the antrum on that side which was likewise

infected. The result was satisfactory with no external deformity. Some months later a small sinus appeared at the inner angle of the orbit and persisted for some time, but finally closed. The case was practically one of pan-sinusitis with the exception that the posterior ethmoids and sphenoid were not implicated. These cases are frequently diagnosed as neuralgic before external evidence of sepsis occurs.

Authors (as Hirschfeld) say that nearly all inflammations of the orbit are caused by empyema of adjacent accessory sinuses, and that even in the case of maladies affecting the texture of the eyeball and appendages they may at times be traced to the same source either directly or indirectly. Chronic conjunctivitis, corneal ulcer, dacryocystitis, etc., may originate in this way. I had a case lately of orbital cyst on the roof of the orbit. When the ethmoid condition was cured, the cyst disappeared. Again, you may get ocular symptoms from a septal spur or deflected septum on which the swollen turbinates impinge; or from occlusion of the natural sinus orifice due to the same cause. One author reports four hundred and nine cases of eye disease in which blindness was caused in sixty-six, or 16 per cent. through empyema of the frontal, ethmoidal or antral sinuses. Again it has been proved by actual demonstration that in cases of orbital cellulitis, where the nasal examination is negative, the original sinusitis which caused the diseased eye condition, may have healed by discharging into the nose, while the orbital infection remained and progressed, owing to the absence of drainage from the socket. The evidence goes to show the necessity for close co-operation between workers in these special regions.

II. RETRO-ORBITAL CARCINOMA

Mr. A. B., aged sixty-two, previous health good. Mother died of cancer. For a number of weeks the sole objective symptom was exophthalmos of the left eye from posterior pressure. The growth seemed located in the cellular tissues of the socket. As proptosis increased, the pupil became divergent and although the adjacent glands were not enlarged, malignancy was suspected in view of the family history.

On November 22nd, 1913, I did the Caldwell-Luc operation on the maxillary antrum, as well as the external operation on the ethmoid labyrinth of the same side. The cavities in both antrum and ethmoid were found infiltrated with carcinoma. A portion of the floor of the orbit, being found necrotic, was taken away, as well as

an area on the posterior antral wall, also the naso-antral wall of that side. After operation, the parts healed up and the patient gained in strength for a time. He took a trip to New York where he consulted Dr. R. C. Myles and others of the Polyclinic Hospital. Radium therapy was discussed but was neither advocated nor employed. The Hiss leucocyte extract was used with some apparent benefit for several weeks. Recurrence, however, asserted itself and the patient only survived eight months. The growth was very free from pain. There was not at any time the least brain functional disturbance to indicate spreading of the tumor backwards through the sphenoidal fissure.

III. PRIMARY CARCINOMA OF LEFT MAXILLARY ANTRUM

J. S., aged fifty-six, referred by Dr. George Hall, consulted me on June 6th, of this year. Personal and family history good. The present trouble he dated from a cold contracted in October, 1916, since when a free nasal discharge has continued from the left side, which had not been benefitted by ordinary treatment of his family physician. With exception of this discharge, with slight pain and tenderness on pressure over the left maxillary antrum, he claimed to be in excellent health, and constantly working at his trade (a butcher).

Examination disclosed the following conditions, viz.: Mucopurulent discharge from left nostril, tumefaction of turbinals, no bulging of naso-antral wall, no external swelling, some tenderness on pressure over canine fossa. In the mouth, the soft tissues of the hard palate were loosened from the bone on left side, forming a tumour 4 cm. by 2 cm. on roof of the mouth. On palpation this tumour gave a boggy sensation to touch but no fluctuation. It corresponded to the left antral floor. On opening the tumour, some very foetid pus escaped and the probe passed freely into the antral cavity without the least obstruction. Extensive necrosis of the hard palate bone was found in the region referred to. Owing to the destruction of bony tissue and general infiltration of contiguous parts, as well as some enlargement of adjacent glands, it was evident that we had more to deal with than a simple empyema of the sinus. On June 16th last I did the radical Caldwell-Luc operation, and removed the necrotic hard palate, the anterior wall of antrum and the naso-antral wall, giving free access to the entire sinus. The contents were carefully removed by curettement until healthy bone was reached. The pathologist reported the specimen to be

carcinoma. The subsequent course of the case was at first promising as the parts healed up and although some discharge continued, the patient maintained his strength and gained weight, working all summer and claimed to feel well. The glands remained quiescent. Recently there was distinct evidence of recurrence and the outlook is therefore unpromising. The question of radium was not considered in this case. Recent reports of some good results from the employment of this substance in sarcomata, have not met with the same encouragement when applied to carcinomatous cases. In any event, until the city or municipality undertakes as a beneficent measure to provide this line of treatment to the community, its price for therapeutical employment is prohibitive to the ordinary citizen.

IV. PISTOL SHOT OF THE EXTERNAL AUDITORY MEATUS; RECOVERY

A. B., aged twenty-seven, male, a well-developed young French-Canadian, was admitted to the Western Hospital on September 9th, 1915, with a history of having been shot in the ear and lost much blood in consequence. His condition on entering showed much prostration from shock and hæmorrhage. Temperature was 95.4° and pulse 100. Facial paralysis of right side was pronounced. Blood was running from the right external meatus, as well as down the patient's throat from the eustachian tube of the same side. Blood clots and disorganized tissue blocked up the external meatus, and on probing into the wound cavity, the instrument passed four and a half inches, traversing necessarily the posterior inferior wall of the tympanic cavity, a portion of the jugular bulb, the pharyngeal muscles and soft tissues. The tegmen was torn from the bone in the tympanic cavity, as indicated very plainly by the probe, and the facial nerve was lacerated by the explosion. As the patient objected to the probing, the ball was not located at this time. The x-ray picture seemed to indicate that the bullet was lodged behind the ramus of the left inferior maxillary. The patient's condition being good two days afterwards, viz.: on September 11th, I operated as follows: Careful palpation was made on the interior surface of the left lower maxillary especially at the ramus, but gave no evidence of a foreign body, neither could it be felt by manipulation of the soft tissues outside or inside this portion of the maxillary bone. An external opening was then made through the tissues in the external sub-maxillary triangle, which enabled me better to palpate the

structures on the internal surface of the ramus, but no success attended this manœuvre. Proceeding farther inward behind the pharyngeal muscles, I felt the bullet (a small one) imbedded in the body of an upper cervical vertebra. Having located the bullet, I separated the muscles in the oro-pharynx over the area of its impaction with the left forefinger, and with the right finger through the cervical tissues externally I secured leverage on two sides of the missile. I could not dislodge it, however, owing to the depth in which it was embedded. Further traumatism seemed unwise, so the attempt to recover it was abandoned. The patient's convalescence was without incident, no sepsis arose, and he gained strength rapidly, the only result of his destructive efforts being a right-sided facial paralysis with anæsthesia of a portion of the tongue due to injury of the chorda tympani nerve.

On considering the anatomy of the parts affected by the shot, one would think it almost impossible for a bullet to enter the tympanic cavity and tear the jugular bulb even to a slight degree without at the same time destroying a part of the carotid artery, owing to the close relations of these vessels. The hypotympanum or floor of the tympanic cavity is formed by a thin lamella of bone separating it from the dome of the jugular, and it was necessarily through this structure that the bullet passed, injuring the vein but apparently not implicating the artery, and one must infer that it was deflected from its course by the petrous bone. Cases are reported where fatal results have followed the accidental penetration of the jugular while doing a mastoid operation. A dehiscence of the bone sometimes occurs here, the tegmen being the only substance in that case separating the bulb from the tympanic cavity. Notwithstanding the fact that the force of the explosion in this case was directed partly toward the posterior tympanic wall, no lesion of the static labyrinth ensued.

NOTES ON TWO CASES OF PECULIAR MEDICAL
INTEREST

I. SYPHILITIC AORTIC INSUFFICIENCY

II. CEREBRO-SPINAL FEVER SUPERVENING UPON (?) ERYTHEMA
NODOSUMBY J. C. MEAKINS, *Lieutenant-Colonel, C.A.M.C.*

1. Staff-Sergeant-Major T. J. S.; Reg. No. T. 9063; A.S.C.; age forty-seven.

This warrant officer was admitted to hospital on February 10th, 1918, with a diagnosis of influenza. He had served in the army since 1889, and his medical history sheet showed no illnesses of importance except malaria in 1901. He was married, having nine children, six alive and well.

Three days before admission he had a chill, followed by fever, headache, pains in the back, and a general feeling of weakness. On admission he had a temperature of 100°, respirations 18, and pulse 80. Physical examination showed no abnormality apart from the cardio-vascular system. There was conspicuous pulsation of the brachial and carotid arteries, and a distinct epigastric impulse; the pulse was regular, between seventy and eighty per minute, and of a moderately collapsing character. The blood-pressure was 150. Heart; apex beat diffuse, point of maximum impulse in the fifth interspace at 10 cm. to left of mid-sternal line. The cardiac dullness extended 10 cm. to left and 4 cm. to right. On auscultation the sounds over the pulmonary area were clear. The second sound over the aortic area was of very poor quality, and was followed by a long blowing diastolic murmur, which was transmitted down the sternum and towards the apex region, where it was less distinctly heard, and was associated with a faint systolic murmur. X-ray examination showed very little dilatation of the aorta; heart shadow not conspicuously enlarged.

On February 13th, 1918, Wassermann reaction was positive. On February 14th, 1918, potassium iodide and mercurial inunctions commenced. On March 7th, 1918, Wasserman still positive, but the diastolic murmur, although still present, was much less

From the Medical Division of No. 15 Canadian General (Duchess of Connaught Canadian Red Cross) Hospital, Taplow, Bucks.

distinct. The potassium iodide and mercury treatment was continued, and during April he received 1.4 gm. of galyl intravenously, divided into five doses at six-day intervals. On April 30th, 1918, the diastolic murmur had completely disappeared, and the systolic murmur at the apex was very faint, and during the ensuing week disappeared also. On May 8th, 1918, the Wassermann was still positive, but all evidence of cardiac lesion had disappeared.

The interesting point in this case is the recovery, while under treatment, of a well-marked aortic insufficiency of syphilitic origin.

2. Driver H. H. N., Reg. No. 30622; A.F.A.; age 19.

This private reported sick in France on April 12th, 1918, complaining of headache, pain in the shins and knees, swelling over the shins, and fever. He was sent to a detention hospital, where he remained for two weeks. During this time bright red circinate patches developed on the shins, forearms, and thighs. He was transferred to hospital, and evacuated to England on May 9th, 1918, diagnosed erythema nodosum.

On admission to this hospital he had pains in the small joints of the hands, in the knees and ankles, and the erythematous patches were still present on the forearms, and gave all the appearance of typical erythema nodosum. Temperature ranged from 101° to 103° F. There was pain in the joints, with some swelling of the knees and ankles and redness about several joints in the hands, particularly the left metacarpal phalangeal joints. Heart and other systems normal. On May 10th, 1918, blood count: polymorphs, 68 per cent.; large mononuclears, 16 per cent.; small mononuclears, 16 per cent.; red cells, 4,900,000; white cells, 8,700; hæmoglobin, 95 per cent. On May 15th, 1918, blood culture sterile. On May 16th, 1918, white cells 20,600. On May 20th, 1918, blood culture sterile. During this period temperature was intermittent; he had irregular and recurrent swellings of various joints, profuse sweats, and the areas of erythema developed over the legs and arms at various intervals. On the morning of May 22nd, 1918, he had a sudden onset of severe headache, vomiting, and restlessness. White blood cells, 14,500; polymorphs, 80 per cent.; large mononuclears, 9 per cent.; small mononuclears, 11 per cent. There was slight retraction of the head and considerable photophobia. Lumbar puncture showed turbid fluid, and 30 c.c. of anti-meningococcal serum were injected intraspinally. Examination of fundi was normal. During the day retraction of the head became more pronounced, and Koenig's sign distinctly positive. Examination of spinal fluid, cell count 6,000 per cmm., cells being chiefly poly-

morphonuclear. No organisms found in smears. Examination of the eyes on May 23rd, 1918, showed the veins engorged; otherwise normal. Lumbar puncture on same date showed slight increase of pressure and turbidity; temperature was lower, and the patient felt somewhat better. On May 24th, 1918, he still complained of headache, there was slight retraction of the neck, and Koenig's sign was doubtful. Temperature was normal; lumbar puncture revealed clear fluid under no pressure. The culture of the original spinal fluid showed a very slight growth, which on agglutination was determined to be meningococcus, Type 3. Patient made an uninterrupted recovery from the meningitis, although the arthritic symptoms and the erythema persisted for many weeks. Repeated cultures from the naso-pharynx, both during the acute stage and the convalescence of the meningitis failed to show any meningococci.

After recovery from the meningitis the following additional history was obtained from the patient: Left Australia on November 23rd, 1916, and on the transport three cases of meningitis developed, with two deaths. As far as he knows he did not come into contact with these cases. On December 26th, 1917, patient spent leave with his brother, a close associate of whom died of meningitis about this date.

This case of was particular interest in that epidemic cerebrospinal meningitis developed in a patient already suffering from a febrile illness accompanied by a pronounced rash.

AN UNUSUAL PSYCHONEUROSIS OF WAR: FUNCTIONAL LOSS OF THE SENSE OF SMELL

BY DIGBY WHEELER, M.A., M.D., C.M., M.R.C.S., L.R.C.P.

Temporary Captain, C.A.M.C.

THE following case of the complete loss of the sense of smell as a functional condition has recently been observed in the medical wards of the Granville Canadian Special Hospital, Buxton.

Cases of aphonia, deafness, amaurosis, amblyopia, anæsthesia, paresis, hemiplegia, paraplegia, etc., appearing as different psychoneuroses of war are frequently encountered, I have not as

yet seen a case reported in any of the literature of the functional loss of the sense of smell.

To physiologists this anosmia is interesting, because it demonstrates very clearly the four primary tastes. Thus a man with the loss of the sense of smell can only recognize things as acid, salt, bitter, or sweet. He is quite incapable of recognizing any of his food—in fact, has lost that fine differentiation with which *taste*, and not *smell*, has usually been credited.

718108 Pte. P., 15th C.B., arrived in France September, 1916. Carried on without any trouble until buried by high explosive shell on April 27th, 1917. He was unconscious for three hours, and recovered as they were digging him out. He was sent to the Casualty Clearing Station by the M.O., after having requested to be allowed to "carry on", because he was told he was "shaky". At the base hospital on April 30th, 1917, he noticed that he could not smell anything, and his meals tasted as if he were eating so much "pine wood". May 15th, 1917, he was sent back to his unit, but his M.O. would not allow him to "carry on" at the kitchens. Here he went out one morning with two other men to bury some decayed meat. While digging the pit they uncovered two dead Germans. The others left because of the offensive smell, but he was able to stick it out and finish the job without any discomfort.

He was sent again to the Casualty Clearing Station, June, 1917, diagnosed trench fever. While at hospital this time he developed gross symptoms of shell shock, such as tremor and persistent occipital headaches.

He was admitted to the Granville Canadian Hospital on July 30, 1918, complaining of headaches, tremor, and pain in the back.

Examination at this hospital showed a well-developed, well-nourished man; heart and lungs normal; reflexes equal and active; abdomen normal; gait and station normal; eyes normal. There was marked limitation of flexion of the back, and also a fine tremor which was confined to the right leg. X-ray examination of the back showed no abnormality. Wassermann negative.

EXAMINATION OF THE NOSE AND THROAT

Anterior nares, left: Septum markedly deviated to this side; lower turbinate enlarged.

Anterior nares, right: Normal.

Throat and posterior nares: normal.

EXAMINATION OF THE SPECIAL SENSES OF TASTE AND SMELL

The examination was carried out with the eyes bandaged. He was given the following to taste:

- (a) Sodium chloride, which he recognized as salt.
- (b) Syrup glucose, which he recognized as sweet.
- (c) HCl dil., which he recognized as acid.
- (d) Syrup quassia, which he recognized as bitter.

A number of volatile substances were given to smell, such as ammonium fortis, ether, oil lemon, hydrogen sulphide, aqua rosæ, oil men. pip., none of which he recognized.

Also a selection of different articles of foods were given to taste, such as cheese, butter, cabbage, potato, beef, jam, mutton, none of which he recognized.

METHOD OF TREATMENT

August 17th, 1918.—A weak faradic current was applied to the muscles of the lumbar region. Practically full voluntary flexion was restored in two minutes.

August 19th, 1918.—A considerable time was spent with the patient explaining his condition to him and assuring him that his sense of smell would be restored.

A strong faradic current was applied to the back of the neck, and at the same time ammonium fortis was held under his nose, and he was instructed to tell what it was. At the end of one minute he recognized it as "ammonia", and was highly pleased with himself. He next recognized oil of lemon with the aid of a weaker current.

The substances as used in the testing of his sense of smell were given again to the patient that he might identify them without the aid of the current. He identified each substance immediately.

The foods, as given in testing his sense of taste, were given again to the patient that he might identify them without the aid of the current. He identified each food immediately. The different foods were administered in combination, and the patient was able to tell accurately what he had been given.

Editorial

A FEDERAL DEPARTMENT OF HEALTH

THE announcement in the daily press that the Federal Government has determined to carry out the long-asked-for and much-promised step of establishing a Department of Health comes like a breath of cool air from the Laurentians, and it is hoped that after fifty years (ten more than the traditional journeyings in the wilderness) the prayers of the medical profession and all hygienists will be answered.

It will be news to many members of the profession that at the first meeting for organization of the Canadian Medical Association in Quebec in 1867, a strong committee was appointed of leaders of the profession to draw up a report on the subject of public health, which report fortunately is recorded in the minutes of the meeting in 1868 and signed by Sir William Hingston, chairman. It will be further still more interesting to know that by order-in-council a conference was held in Ottawa, in March, 1866, of nine physicians who prepared a memorandum on cholera signed by Dr. MacDonnell, chairman, and Dr. Taché, secretary. To the younger members of the profession it must seem amusing to quote its opening sentence, "To make use of the happy expression of M. Tardieu, 'It is well to bear in mind that pestilential diseases are not of that class of which it has been given man to penetrate the origin and to understand the principle.'"

Resolutions of committees urging a Department of Health were adopted yearly for several years after 1868, and in 1894, Dr. Brouse, M.P., for Brockville, introduced a bill into the House of Commons for its establishment. A series of articles appeared in the *Montreal Medical Journal* from 1871-1874.

which presented in the clearest way the generally accepted views both of the profession and of the legislators of that time as to the functions and duties of the Federal Government in the matter of public health. The writer, probably Professor Fenwick, urged that action be taken by parliament that session, otherwise, as a political change in the Government was pending, it might mean years before the House would again be educated up to the point of taking action. So it happened that for nearly ten years there does not seem to have been an active interest shown in the matter either by the Association or parliament. Apparently the profession was weary with asking in vain.

But public opinion in matters of health was growing, for 1882 saw the first Provincial Board of Health in Canada established in Ontario. Primarily appointed to deal with epidemics and statistics through encouraging municipal councils to organize health committees, the executive of the Board soon found that progress was impossible without compulsory local boards and a public health act. Such an Act was passed in 1884 based upon the English Health Act of 1875. Quebec followed with a "*Conseil de Santé*" in 1886, the year after the great smallpox epidemic, while Manitoba and the other provinces have followed, until now each has some organization more or less developed. It is probable that it is to this action taken by the provinces that we must look for an explanation of the seeming inaction of the profession and of the changing attitude of the Federal Government as regards a Federal Department of Health. The provinces and the quarantines were in some measure protecting the public health; while the minutes show that the Canadian Medical Association had begun to be more particularly interested in medical education and in unifying the practice of medicine for all Canada.

With the incoming of the twentieth century, however, the progress of the exact sciences in their application to medicine had become so great that preventive medicine

began to receive more consideration; while the public had become educated along with the profession in the belief that tuberculosis was preventible, that infant mortality was a matter largely of personal hygiene, that correcting the defects of children was based upon their inspection in schools, and that district health nurses and sanitary house inspection were becoming essential factors in the social progress of every community.

Thus the time had arrived, with the great increase of population, through immigration doubling urban populations, with an unassimilated mass of new-comers of diverse nationalities, when the knowledge of what must be done began to resolve itself into the problem of:—Who should do it? Municipal Health work had been brought into touch with and guided by provincial legislation, but the provinces continued to stand apart without any health relations with the National Government, although the latter was responsible for the ingress of a population upon whose physical, mental, and moral welfare must depend in large measure our social status. So it will be found that at almost every annual meeting of the Canadian Medical Association since 1901, reports were adopted outlining in the clearest manner the views of the profession as to what the scientific, social, and economic needs of the country demanded on the part of the Dominion Government. Deputation after deputation waited upon the Government and then only was the fiction of constitutional difficulties in legislation set up, to be excused only on the ground of a lack either of knowledge or of appreciation of the situation. A similar situation had prevailed elsewhere; but with increased responsibilities, even in the United States where the theory of sovereign States rights had prevailed for a century, a Public Health Service in 1903 with large appropriations was developed to meet the needs, not only of their new possessions but of coast quarantines, immigrant inspection, and the promotion of public health in all matters relating to interstate health.

With 1914 came the war which has caused in all matters a rapid revolution in our thinking, and in nothing so much as in the realization that the man-power of a nation underlies every question affecting its present and future efficiency. In the United States this year finds \$4,000,000 devoted through special legislation to the protection of the soldiers and public against the dangers from social diseases. England has a bill being introduced to Parliament to unify all public health services under one Department of Health with its Cabinet Minister, while the splendid work of the Canadian Army Medical Service has shown that in no particular is medicine in Canada behind that of the other Anglo-Saxon allies. It would indeed be playing false to our splendid overseas record and to our future at home, in view of all the needs now and of the expected tremendous national demand which our rapid national development will force upon us, if Canada does not unite her whole energies in caring for a people who, whether abroad or at home, have proved themselves worthy of the high position now accorded them of a nation amongst nations.

By means of teamwork on the part of specialists the Medical Department of the United States Army has now erected a dependable line of defence against empyema, which assumed the proportions of an epidemic in the American camps last winter, the virulence of the germ is such that the infection is always to be dreaded. Surgeon-General Gorgas ordered special investigations to be made. Following this the cause was discovered by an intensive study in the laboratory divisions of bacteriology and pathology. The surgical division was charged with the problem of devising the best method of treatment. A special group consisting of surgeons, internists and laboratory workers, was located at Camp Lee, Va., where a large group of patients were available for study. At the same time empyema teams, con-

sisting of a surgeon, a medical man, and a laboratory expert, were appointed from the staff of each base hospital to treat and make a special study of all cases at their particular hospital. The treatment carried out by the Empyema Commission consists of removing the pus by aspiration at as frequent intervals as necessary. It was proved that the virulence of the exudate usually decreased during the periods between aspiration. In other words, nature herself seems to take a hand. The best time to operate is when the patient begins to improve. A local anæsthetic is generally employed; means are taken to prevent collapse of the lung. Many ingenious devices have been introduced. In one ward filled with patients suffering from empyema the entire group of draining abscess cavities were attached by tubing to a central suction pipe so as to keep the pus sucked out and the lungs of the patient expanded. The following figures demonstrate the effectiveness of the new technique of treatment. From October to January (20th and 29th), eighty-five cases were under treatment which were not aspirated; of these fifty-two died. From January 29th to April 30th, sixty-nine cases were being treated; all of these were aspirated. The deaths numbered six.

THE American Red Cross Research Society in Paris has received an announcement from Major Pilcher that a cure has been found for gas gangrene. Quino-formol is what the new solution is called and it is compounded of quinine, acetic and hydrochloric acids, and formalin, thymol and salt. It is said that it has the advantages of simplicity of preparation, stability and portability. It is suitable for the initial treatment of wounds at dressing stations or evacuation hospitals. Recent tests of quino-formol, made at the Auteuil hospital, showed just one failure, and not a single amputation was performed in six weeks. Undoubtedly a record since the beginning of the War. There had been an influx of seriously

wounded soldiers. Application of the solution is identical with that prescribed for use of the Carrel-Dakin treatment which has been often used in conjunction with quino-formol.

THE American War Department have had, during the last six months, plans under advisement to check outbreaks of lobar pneumonia, and have issued a statement from the office of the Surgeon General that vaccination against pneumonia will be given weekly to officers, enlisted men, and civilian employees of the Surgeon General. All who appear will be volunteers. The vaccine used is a Lipo vaccine prepared at the Army Medical School. It is given in a single injection and contains pneumococci of three types (I, II, and III). Reactions are, as a rule, less pronounced than after antityphoid vaccination. Experiments with the vaccine have been progressing satisfactorily for some time. Vaccination against pneumonia has been given in two of the Army camps. At Camp Upton, last winter, during the ten weeks from the period of vaccination until the troops went overseas, no cases of pneumonia, due to the three types of pneumococcus protected against, occurred among the vaccinated troops. About 10,000 troops, all volunteers, were vaccinated. The incidence of pneumonia from other organisms was only one tenth as high among the vaccinated as among the unvaccinated, although previous to vaccination the incidence of pneumonia had been equal in the two groups.

THE rebuilding and re-equipment is planned of the St. John's Ambulance Brigade Hospital, destroyed recently at Etaples by the German bombardment. It was left in a state of absolute ruin which necessitated its immediate evacuation, but the military authorities desire its re-erection in France on another site. As this will entail very heavy

expenditure the Order of the Hospital of St. John of Jerusalem has sent out a direct appeal from headquarters. Already the Victoria branch has forwarded a cheque to England and the support of various branches throughout Canada has been solicited. Newfoundland is making a special appeal; it has already supported sixty beds at the Etaples hospital from its famous "Cot Fund", which endows beds in hospitals already existing and which requires \$50,000 annually for its upkeep.

Correspondence

EDITORIAL ERROR IN PUBLICATION OF LIEUTENANT COLONEL BIGGAR'S LETTER

WE very much regret an error in connection with the publication of Lieutenant-Colonel Biggar's letter in our November issue. The official title of his present position was added below Colonel Biggar's signature without his authority. The letter was an expression of Colonel Biggar's personal opinion, and did not emanate from, nor was it written on behalf of the Board of Pension Commissioners. The description of his official position was added below the signature by the Editors of the JOURNAL.

Obituary

DR. FRANK FAIRCHILD WESBROOK

IN the death of Dr. Wesbrook on October 21st, the University of British Columbia loses its president and the medical profession one who had a distinguished scientific career before he devoted himself entirely to educational work. Born in Brant County, Ontario, in 1868, he graduated in Arts and Medicine at the University of Manitoba. Later he studied abroad in Cambridge, London, Dublin, and Marburg. For a time he was Professor of Pathology and Bacteriology in the University of Manitoba, and in 1895 was appointed to the corresponding professorship in the University of Minnesota, which he held until 1913. He was Dean of the Medical School from 1906-13. His work in public health was recognized as of the best. For many years he was Director of the laboratories and a member of the Minnesota State Board of Health. In 1913 he was appointed President of the University of British Columbia and threw himself with energy and enthusiasm into the heavy work of organization of a new institution.

He belonged to many societies both on this continent and abroad and among other honours had been President of the American Public Health Association and of the section on State and Municipal Hygiene in the International Congress of Hygiene. He was Chairman of the Provincial Committee on Food Resources. The Universities of Manitoba, Toronto, and Alberta had conferred the degree of LL.D. on him.

It is not usual for college presidents to be chosen from the medical profession. Undoubtedly Dr. Wesbrook's powers of organization and his ability in administration had much to do with the choice. The war added to his difficulties and interfered with the programme of development which had been planned. The writer spent a day with him in Vancouver in 1915. He was full of enthusiasm and of hopes and plans for the new University, but always came back to the question as to how he could best help with the war. There have been few men with a more cheering and attractive personality. It was always a pleasure to have a

visit from him and he was as much interested in the work of other men as in his own. For many of us his passing means the loss of a good friend. The profession has lost one who did splendid work especially in investigation in bacteriology and health administration. A young University has lost a leader who, had he been spared, would have done much to establish an institution useful both to British Columbia and to education in general.

T. McC.

DR. CHARLES EDGAR HOLBROOK

THE medical profession of Montreal has suffered severe loss by the death on October 18th, at the Royal Victoria Hospital, of Dr. Charles Edgar Holbrook.

Dr. Holbrook, who was in his thirty-fifth year, was born at Ogdensburg, N.Y., and entered McGill University with the medical class of 1908. After graduation he received an appointment as interne in the Montreal Maternity, which he held for a year, and subsequently served for some months in the Montreal General Hospital. Later he obtained an appointment in the Woman's Hospital in Baltimore, and on his return to Montreal in 1913, he again became attached to the staff of the Montreal General Hospital. With the outbreak of war the superintendency of the Montreal Maternity became vacant, and Dr. Holbrook took the post, remaining till July, 1916, when he obtained an appointment in the Royal Victoria Hospital, to which institution he was attached at the time of his death.

Few young men combine the personal qualities and the training which he possessed, and to recent graduates of McGill University his death will come as a great shock.

Though his exemption could have easily been secured from the draft, Dr. Holbrook felt called upon to offer his services for the war, and took his place in the draft, his commission as a lieutenant in the United States Medical Corps being received on the day he entered hospital.

Dr. Holbrook was to have been married on October 16th to Miss Kathleen Cains, superintendent of the Montreal Maternity. The wedding was at first postponed on account of his illness, but later, when his condition became more grave, both insisted that the marriage should take place, and the ceremony was performed in the hospital on the Monday prior to his death. The sympathy of the profession goes out to Mrs. Holbrook.

DR. ELISHA JESSUP

AFTER an illness of a critical nature, Dr. Elisha Jessup, member for the county of Lincoln in the Ontario Legislature for over twenty years, died at his home in St. Catharines, on October 24th. For some months back he had suffered from heart trouble, and about ten days previously was taken ill with influenza, but was recovering when he was seized with an attack of heart failure, and gradually sank into unconsciousness. He was born in Norfolk County, England, and came to this country at an early age. In 1870 he graduated in medicine from the University of Toronto. As a young man he practised medicine in Jordan for twelve years and then removed to St. Catharines, which has ever since been his home and the scene of his medical and public activities. His death removes from this city and district a familiar and interesting personality. He held an immovable position on the stage of local politics, his majority, in more than one instance in electoral contests, running far above a thousand. He was a strong Conservative and adhered constantly to that party, yet because of his unusual characteristics he held a large vote among the Liberals. In the election of 1911 he was returned by acclamation. But it was as the "family doctor" that the late member established his widest influence. He was a sort of paternal physician in the community, to whom were entrusted many family secrets and troubles outside those of physical illness. This was the key in fact to his remarkable success at the polls. He was a plain man with plain words, who understood well the plain people, who always had their best interests at heart, and tried to interpret their ideas and needs in simple speech and methods. He leaves behind him a fine record; seventy-five years spent in the service of the people.

DR. J. P. RUTHERFORD

THE death of Dr. James P. Rutherford, on October 24th, at Chatham, removes one of the pioneer medical men of this section. He was born at Richmond Hill, York County, in 1844. He graduated in medicine from Victoria University, Cobourg, at the age of twenty-three. For ten years he practised in Kent County, at McKay's Corners. He then removed to Chatham, and for more than half a century he has cared for the sick in this section and built up a very large practice. His genial nature won him many friends. In 1888 he became mayor of the city. Among the

first to take up surgery he established an exceptional reputation in this work, in which he was highly successful. He practised until last February, when he retired. He leaves a wife and two sons, both residing in Chatham, and both following their father's profession.

At his residence, Petrolia, on September 20th, Dr. Robert S. Macalpine, long a familiar and beloved figure in the community passed quietly away. His gentle influence for the good of others, in the town and surrounding country will be greatly missed. Sterling of character, he was strongly relied upon and was found unfailingly dependable. In the home, in the church, and among his numerous patients his care and consideration will never be forgotten. Unostentatious, honourable, conscientious, the whole community is bereaved in the loss of such a man. He is survived by two daughters and an only son, now on active service in France.

DR. JOHN MACKENZIE, one of the best known physicians in Nova Scotia, died on October 12th, at Pictou, from pneumonia following Spanish influenza. He was the health officer at Pictou and attended a meeting of the board shortly before his death. He was a son of Dr. George MacKenzie, who for many years practised in Pictou. He graduated in medicine from Dalhousie University.

WITH deep regret the announcement is made of the following names of members of the profession who died very suddenly from influenza and pneumonia during the recent epidemic. Dr. Turcotte, Nicolet; Dr. C. W. Graham, Goderich; Dr. L. G. Pearce, Brantford; Dr. H. R. Barker, Sharbot Lake; Dr. E. M. Lambert, Ottawa; Dr. Henry Lockhart, Cowansville; Dr. J. C. Saint Pierre, Montreal; Dr. Romulus Falardeau, Montreal; Dr. C. E. Dubuc, Montreal, Dr. W. Halpenny; Montreal; Dr. Stanilaus Briscon, Chatham; Dr. F. St. Jacques, St. Anne des Plaines.

THE following list briefly chronicles the deaths of late member of the medical profession in this country who promptly responded to the call of duty in the recent epidemic of Spanish influenza, and whose untiring efforts, courage, and ceaseless self-devotion have cost them their lives. The brief report emphasizes the fact that deeds of heroism leading to martyrdom are not confined to the battlefields. Dr. A. S. Lovett, Paris, Ontario; Dr. H. B. Andrew,

Sunbridge; Dr. A. W. Stinson, Cobourg; Dr. R. W. Faulds, Elmira. Dr. James Ewart Brown, Toronto; Dr. Osler M. Groves, Carp, Carleton County; Dr. Gordon Brown, Danville; Dr. James L. Stapleton, London, Ontario; Captain (Dr.) T. R. Guilfoyle, C.A. M.C., Whitley Camp, England; Dr. Rosseau and Dr. Duggan, Saskatchewan.

Correction of error in November issue:—

UNDER the obituary notices in the November number the death of Dr. Thomas S. Cullen of Baltimore, was erroneously reported. The notice from which the information was taken, no doubt, should have referred to the death of Mrs. Cullen, who was for many years the devoted wife and co-operator with Dr. Cullen in both his civic and professional duties. She died of a cerebral cyst last September.

Miscellany

News

MARITIME PROVINCES

LECTURES in the Medical Faculty at Dalhousie University were begun on October 1st.

The entrance into the First Year of Medicine was exceptionally large; amongst others entering there, were several who returned from the War to complete their medical studies.

Owing to the outbreak of influenza in Halifax and the province of Nova Scotia, the university was closed on the suggestion of the Board of Health for the city of Halifax from October 7th until further notice.

As soon as it became known that there was a shortage of doctors in Boston to control the epidemic of influenza there, Drs. J. G. MacDougall, Lewis Thomas and J. F. Lessil went to that city from Halifax. On their return they published a valuable announcement dealing with the character and prophylaxis of the disease. A number of nurses also went from Halifax to Boston to assist in combating the scourge.

MANITOBA

ACCORDING to the report recently submitted to the city council the past year has been the busiest in the history of the Winnipeg Municipal Hospital. The expenditure shows a total outlay of \$287,698, against expropriations amounting to \$287,952. The revenue from patients' accounts amounted to \$16,768, which reduced the total expenditure to \$270,698. There were 1,782 patients admitted to the hospital during the year, with 232 carried over from the previous year. The report concludes by saying the most serious problem facing the hospital at the present time is the shortage of nurses, a situation created by the demand for nurses for army service.

The Newdale Consolidated School and four other large schools in the district were closed in the month of September on account of an outbreak of infantile paralysis. A large party of blind children, gathered from the West, were despatched east to be enrolled as pupils at the Ontario Institute for the Blind at Brantford.

ALBERTA

THE annual convention of the Alberta Medical Association was held on September 25th, and continued three days. The meetings were held in Edmonton at the University of Alberta. The following officers were elected for the ensuing year: President, Dr. G. A. Anderson, Calgary; first vice-president, Dr. F. W. Gershaw, Medicine Hat; second vice-president, Dr. G. H. Ingraham, Delia; secretary-treasurer, Dr. A. Fisher, Calgary. Next year's session will be held in Calgary.

Important resolutions were passed in regard to the prescribing of alcoholic liquors. This action on the part of the medical men was taken after a serious discussion of a communication received from the attorney general's department, requesting the co-operation of the profession in enforcing the Liquor Act, and also the Act governing the sale and administering of narcotic drugs. All of the doctors at the meeting were unanimous in their determination of backing the government in this way. The resolutions of the association provided for a limit of eight ounces in any prescription, a similar limit on the quantity to be kept by a doctor for the requirements

of his own practice in places where a vendor is established, and the sale of medicinal liquor in sealed bottles only. In the resolution, the members of the association recommended that the name and address of the party to whom a prescription is issued be placed upon each prescription, so that information will be available to show whether the liquor is used for legitimate purposes and by the proper party. It was also recommended that the government should make careful inspections through the province at regular intervals.

A RECENT order-in-council has transferred the whole health department of the province of Alberta to the charge of the Honourable A. G. MacKay, the new minister of municipalities. This department was organized and was formerly in charge of Honourable George P. Smith, but with the change in the cabinet he now takes over the department of education, and the department of health has been placed with the department of municipalities. It has been considered that the two departments can work together under the same head with advantage, since each require much of the same detailed information. With regard to the municipal hospital Mr. MacKay sounds a note of warning. He thinks that the hospital areas may be too small for safe financing. "Nothing," he says, "more unfortunate could happen than the establishments of small districts with heavy assessments and lack of funds with which to run the hospital so as to give first class service. The minister states he will not establish a district unless he is absolutely satisfied that it is in a sufficiently strong financial position to give this service when it is built. He is also very decided on the matter of boundaries being arranged so as not to leave any small territories stranded in between districts.

OWING to the financial difficulties of the Calgary Hospital the commissioners have drawn up a report to the city council recommending that a supplementary grant be made to the hospital of \$17,000 to enable it to carry on its work for the balance of 1918. The understanding between the hospital board and the city is, however, that whatever provincial grants may be earned by the hospital during the last six months of 1919 are to be credited to the estimates of the city. This means a grant of \$8,000 and an advance of \$9,000, since the hospital's estimate that the twenty-five cents per day per patient which is paid by the provincial government will in six months total between nine and twelve thousand dollars.

SASKATCHEWAN

A MOVEMENT to improve the health of the nation has been inaugurated by several of the city councils of western cities, led by Saskatoon. Startled by the revelations as to the average standard of physical fitness of single men as shown by military records, they have drawn up resolutions regarding the matter, urging on the Provincial and Dominion Governments the advisability of taking advantage of the records filed by the military authorities as a result of the examinations made. Vancouver and other cities have considered a letter sent out by the City Council of Saskatoon asking for their co-operation in urging the governments to action and have endorsed the resolutions. A communication has been received from Premier Borden stating that the petition had been considered in council, and that the minister of militia and defence had been instructed to prepare a report which would be submitted in council. The letter concluded: "The minister of militia informs me the results of examinations are available in all cases of men who have been rejected, and that he will be happy to place results of the medical examinations at the disposal of the governments in each province in order that any action which the department of public health in each province may think it desirable or possible to take may be taken."

UNDER the new régime adopted by the medical authorities at Ottawa, the services of practically all medical officers known as part time men will be dispensed with, and full time men, or officers who under straight pay of rank are willing to devote all their time to military work, are being substituted. In putting the order into effect several part time officers in Regina, and various parts of Saskatchewan, are being dropped and return to civilian practice only. It will finally mean that twenty-four part time officers will be let out, and ten full time officers will be secured to carry out their work. At the present time eight civilian practitioners are on duty. This number will be reduced to three who will be permanently engaged. The three are special senses consultants, one in each of the three cities, Regina, Moose Jaw and Saskatoon. Eventually twenty-seven full time officers will be doing military work in the A.D.M.S. department in M.D. 12. Under the old routine forty-six medical officers were on the strength of the department, including the part time men. The officer in

command is Colonel E. D. Davis, C.M.G., and the deputies are Captain G. O. Wood, C.A.M.C., and Captain A. C. Scott.

DR. J. GORDON WRIGHT, late superintendent of the Kingston General Hospital, has been appointed medical superintendent of the Regina Medial Hospital to succeed Dr. Dakin whose resignation went into effect on September 1st. The appointment was made by a special committee of the board of governors, their action being endorsed unanimously at a later meeting of the general board. Dr. J. Segal has been appointed medical superintendent of the Earl Grey Sanatorium replacing Dr. L. G. Hoole, who has been transferred to the Tranquille Sanatorium in Kamloops.

Great progress has been made in the Moosomin and Watrous districts in inaugurating the plan for school nurses. The Honourable W. M. Martin is making plans for a wide extension of the work. He is to ask the next session of the legislature to provide sufficient funds for the appointment of at least twelve new school nurses during 1919. There are forty-one inspectorates in Saskatchewan.

ARMY MEDICAL NEWS

THE King recently invested with the Distinguished Service Order, Majors Tyee and Lomer, medicals.

The Military Cross has been awarded to Captain Walter Mingie, C.A.M.C., of Montreal.

Six Canadian nurses have been gazetted for the Military Medal for bravery during air raids: Nursing Sister Edith Campbell, Pointe Clare; Nursing Sister Lottie Urquhart, New Glasgow; Nursing Sister Janet M. Williamson, Greenvale; Nursing Sister Meta Hodge, Hamilton; Nursing Sister Leonora Herrington, Napanee; Nursing Sister Eleanor Jean Thomsin, Valleyfield, Quebec.

Nursing Sister Spaulding was recently invested by the King with the Order of the Royal Red Cross, at Buckingham Palace.

Amongst a number of others the name of Nursing Sister Caroline G. Green, of St. Thomas, has been brought to the notice of the Secretary of War for valuable services rendered.

Captain William Givens, C.A.M.C., of Toronto, has been awarded the Military Cross. He maintained First Aid post for two days under intense fire.

Captain Benjamin Lyon, C.A.M.C., of Kingston, has been awarded the Military Cross. He followed a cavalry charge on foot, attending the wounded.

THE following officers have returned to Canada: Colonel J. T. Clarke, Lieutenant-Colonel J. F. Kidd, Majors K. F. Rogers, L. J. Rhea, A. S. Langrill, S. S. Skinner, Captains C. G. Imrie, J. H. Fisher, G. B. Wiswell, D. G. Elliot, M. J. Gibson, W. S. Atkinson, C. B. Trites, W. J. Donswell, A. W. Park, J. T. Mulvey, N. J. Amyot, J. G. McCammon, C. D. Rilance, G. S. William, S. Trayner, W. A. Harvey, N. T. Beeman, T. Gaddes, A. J. B. Hebert, G. A. McPherson, H. W. Byres, C. Howson, J. C. Calhoun, W. E. Ainley, J. J. White.

PROMOTIONS (Overseas): To be Lieutenant-Colonels: Majors G. S. Mothersill, W. A. G. Bauld, A. L. Johnson, F. H. Mackay, F. A. Young, N. V. Leslie, W. G. Turner,

To be Majors, C. E. Anderson, E. L. Pope, H. G. Wood, H. K. Bates, W. L. Mann, W. J. E. Mingie, J. Seager, F. E. Pettiman.

To be acting Major: Nursing Sister A. G. Hogarth.

Promotions (Canada): To be Major while acting as D.A. D.M.S. (Regina) Captain G. O. Wood.

Appointments: Major Charles McMane becomes A.D.M.S. at Quebec in place of Major G. A. Winters who has joined the Siberian Force.

Captain A. F. Menzies has been appointed cholera expert for the Siberian Force.

MAJOR F. A. CLELAND has been appointed senior surgeon of the Siberian Force.

CAPTAIN P. H. DESNOES becomes chief surgeon at the Fredericton Military Hospital.

DR. STARR has been appointed one of the consulting surgeons to the British force in France.

CASUALTIES

Killed in Action

W. R. THOMPSON, C.A.M.C., Vancouver.

S. A. KILPATRICK, C.A.M.C.

C. E. R. HALL, C.A.M.C., Vancouver.

A. EVANS, C.A.M.C., Petersville, Nova Scotia.

Killed in Action—Continued

T. V. G. NICKSON, C.A.M.C., St. John, New Brunswick.
D. PATTON, C.A.M.C., Calgary.
W. R. PRINGLE, C.A.M.C., Stella, Ontario.
SERGEANT G. R. MATTHEW, C.A.M.C., Sawyerville, Quebec.
J. H. GOSTIN, C.A.M.C., Montreal.
N. JARVIS, C.A.M.C., Winnipeg.
D. HEATH, C.A.M.C., Campbellford, Ontario.

Died of Wounds:

Captain Allan Parker, M.C., C.A.M.C., Humber Bay, Ontario.
JAMES REID LOCKE, C.A.M.C., Montreal.
P. PENFOLD, C.A.M.C., Winnipeg.
J. HOYLE, C.A.M.C., Montreal.

Died on Active Service:

NURSING SISTER MIRIAM BAKER, Winnipeg.
NURSING SISTER MATILDA E. GREEN, Harmsworth, Manitoba.

Died at Sea

LIEUTENANT WILLIAM McLAREN McLEOD, C. A.M.C., Montreal.
DR. C. DICKINSON HAMILTON, C.A.M.C., Ottawa.

Died

CAPTAIN W. C. H. O'DONOGHUE, (medical officer of Siberian cavalry detachment), Westport, Ontario.
CAPTAIN (DR.) ARNOLD GRISDALE, C.A.M.C., Niagara Camp.
CAPTAIN W. LUTON, C.A.M.C., St. Thomas, Ontario.
CAPTAIN C. H. SMITH, C.A.M.C., Montreal.
NURSING SISTER M. MOHERLY, Vancouver.
J. HAAS, C.A.M.C., Minot.
P. NIELSON, C.A.M.C.
F. WHEELER, C.A.M.C.
T. FOWLER, C.A.M.C., Montreal.

Wounded

CAPTAIN F. DAY, C.A.M.C., Pictou, Nova Scotia.
CAPTAIN M. MORRISON, C.A.M.C., Ottawa.
CAPTAIN A. ARGUE, C.A.M.C., Carp, Ontario.
CAPTAIN N. LITTLE, C.A.M.C., Trenton, Ontario.
CAPTAIN CAMERON, C.A.M.C., Port Rouge.
NURSING SISTER V. HENNAN, Saskatoon.
M. MATHESON, C.A.M.C., Tiverton, Ontario.
J. B. JARNASON, C.A.M.C., Manitoba.
H. RODGERS, C.A.M.C.
P. MOORE, C.A.M.C., Brantford, Ontario.
T. TREPANIER, C.A.M.C., Sherbrooke.
W. GORDON, C.A.M.C., Ford, Ontario.
SERGEANT J. WALL, C.A.M.C., Goshen, Nova Scotia.
A. W. DYKES, C.A.M.C., Montreal.

Book Reviews

THE CANADIAN MEDICAL WEEK, HAMILTON, May 27th—June 1st, 1918. Published under the auspices of THE ONTARIO MEDICAL ASSOCIATION. 338 pages. Price, \$3.00. Publishers: The Macmillan Company of Canada, Ltd., at St. Martin's House, Toronto, 1918.

If anyone had any doubts whether there were such things as Canadian Medicine and Canadian Surgery, a glance through this volume would scatter his doubts forever.

As might be expected, there are some valuable papers by our colleagues from the great Republic to the south, but the volume before us is a fine example of the results of clinical research and observation by purely Canadian investigators. The papers strike one as the outcome of the careful thought of men speaking from first hand knowledge of their respective topics. The two papers on Asthma—the one by Dr. Chandler Walker, "A Clinical Study of Four Hundred Patients with Bronchial Asthma," and the other by Dr. Isaac A. Abb of Chicago on "Asthma in Infancy and Childhood"—are particularly helpful.

Naturally the problems of venereal diseases are attacked with boldness tempered by common sense. Dr. H. W. Hill's phrase—

"Syphilis, the Kaiser of diseases," ought to live for several reasons. Although the causes of both tuberculosis and syphilis are known, and although both diseases are curable, the former by perfect ventilation, the latter by perfect conduct, it is "a long, long way" either to that physical or to that moral Tipperary respectively.

The articles on nerve lesions and psychic disorders arising out of the War are admirable and timely.

It is almost ungracious to point out a singular verb and a plural noun in the sentence from the official programme on the title page. Most fittingly there is a list of graduates and undergraduates of the various Canadian universities who have given their lives in the great struggle of light and freedom against darkness and tyranny.

Very fittingly the simple and pathetic lines "In Flanders Fields" are reproduced, lines sufficient themselves to destroy once and for all the widespread misbelief that a man of science cannot also be a poet.

D. FRASER HARRIS.

MEDICAL CONTRIBUTIONS TO THE STUDY OF EVOLUTION. By J. G. ADAMI, M.D., F.R.S., F.R.C.P. 361 pages with illustrations. Publishers: Duckworth & Co., 3 Henrietta Street, Covent Garden, London, W.C., 1918.

Dr. Adami has brought together in this volume a valuable collection of addresses, studies, and essays on adaptation and heredity in their relation to disease. The first part of the book consists of the Croonian lectures delivered to the Royal College of Physicians, London, June, 1917. Among the special topics, treated with characteristic lucidity, may be mentioned the potential variability of bacteria; the biophoric concept, a physico-chemical theory of evolution; habit of growth, a law of habit or progressive adaptation; classification of tumours; and the paradoxical phenomenon of anaphylaxis or sensitization of the host by a first injection of foreign proteins which induces, after an interval of a week or ten days, an anaphylactic state of hypersusceptibility to a second injection of the same proteins, the exact reverse of immunity.

Much interesting sidelight is thrown upon obscure passages in medical experience, and the salt of theory is added to the routine of practice.

A. W.

Medical Societies

MONTREAL MEDICO-CHIRURGICAL SOCIETY

THE eleventh regular meeting of the society was held March 1st, 1918, Dr. A. E. Garrow, president, in the chair.

PATHOLOGICAL SPECIMENS: Series by Dr. Horst Oertel.

1. This specimen is a very extensive case of fat necrosis of the pancreas. It will be seen that practically a complete sequestration of the pancreas has occurred and there is nothing left of it except tinder-like shreds of tissue which occupy the omental bursa; in other words the fat necrosis has become so extensive as to involve and destroy the whole of the pancreas. But it has extended further into the surrounding omental and mesenteric fat tissue and a great deal of this has completely liquified so that at autopsy it formed an almost purulent looking mass. Such an extensive condition is uncommon, although not unknown. The case occurred in Dr. Keenan's service at the Royal Victoria Hospital, who had already made the clinical diagnosis of fat necrosis of the pancreas on the admission of the patient. It is interesting that in this, as in most of these cases, there also existed gall stones, but we have been unable to find any obstruction of either the bile ducts or the duct of Santorini. If you turn up the stomach and reflect it in this specimen you will see well the empty omental bursa but for the shreddy remains of pancreatic tissue.

2. The second specimen is one which represents an interesting lesion in an infant which died almost immediately after birth, having hardly breathed. It came to use from the Maternity Hospital. Here is the whole of the thorax into which two windows have been cut and it will be seen that on the left side there is a large diaphragmatic hernia through which have passed many loops of gut and also the greater part of the left lobe of the liver. There has been an almost complete twisting of the heart to the right side so that the vessels of the heart are displaced and kinked. Very little is to be seen of the left lung which is just visible in the upper part of the thorax. The hernial opening is covered by a loose, fine,

fibrous membrane which may be peritoneum, but is more likely a loose tendinous portion of the diaphragm. The gut and liver were covered by this membrane in the pleural cavity. There can be little doubt that the lesion is a developmental one. It is unusually large.

The anatomical findings demonstrate that life could not be compatible with these circumstances and the child therefore died as soon as it was severed from the nutritive connection with the mother:

DISCUSSION. Dr. A. D. Blackader: I would like to ask if the sudden death was due to the condition of the heart, because a good many cases are reported of diaphragmatic hernia into the lungs having existed for some time, and was it the condition of the heart in this case which gave rise to this sudden death.

Dr. Maude E. Abbott: Was there any defect in the pericardium?

Dr. H. Oertel: As far as Dr. Blackader's question is concerned it is true that diaphragmatic hernias are by no means very infrequent. They result from lack of proper separation of the pleural cavity from the abdominal cavity. Many are compatible with life and even unrecognized until autopsy, as we also find it at times in peritoneal-pericardial hernia. Some years ago I autopsied a man well over middle age in which several loops of intestine were found in the pericardium. In this case, however, several conditions would appear to make it impossible for life to go on, the diaphragmatic hernia was so very large and complete that not only a great part of gut but a good portion of the liver passed into the pleural cavity. By this means aeration of the lung was made impossible and the lung remained really as a foetal gland in the upper thorax. There is a similar lack of lung expansion on the right side as heart and blood vessels were moved over and in addition kinking of the large heart blood vessels must have been a tremendous impediment to circulation. As far as the pericardium is concerned it is quite intact, well formed, completely separated from the pleura and from the diaphragm. Whether there is a malformation of the heart itself we have not as yet determined, as the specimen is still intact.

PAPERS: "Polya's Operation in Gastrectomy for Garcinoma. With report of three cases," by Dr. E. M. von Eberts. (Published in this issue.)

DISCUSSION: Dr. A. E. Garrow: The original operation, as proposed by Polya, has many technical difficulties in the perform-

ance of it. Dr. von Eberts made the statement that one great advantage was that it could be done as a one-stage operation. I think personally that that is its weakest point, because we are called upon to operate on these cases often when their condition is very poor; the patient has been starving for weeks, probably for months. The growth on examination may be not very large and quite removable but the patient's condition is such that they cannot withstand a partial gastrectomy. These cases can be tidied over by a rapid gastroenterostomy, or a posterior operation which does not limit a subsequent gastrectomy. That is one of the criticisms I have to make, that it interferes with the simple problem of providing drainage for the stomach and giving the patient an opportunity to feed up for two or three weeks. The second objection is a technical difficulty. In performing the operation for cancer, particularly where he follows the so-called Hartman lines, to draw this section of the stomach through the transverse mesocolon and to stitch this for at least three quarters of an inch outside this incision is a very difficult matter. I have tried it several times after having cut the stomach to see if I could do it and I could not bring the transverse mesocolon up to that point. Where the stomach is very markedly dilated that can be done. To overcome this difficulty some have recommended another modification, that is, partially close half or a third of the section and then to do an anastomosis with the lower part. You have the same difficulties and the same dangers to contend with that Bilroth had in his anastomosis of the duodenum. The modification referred to as having been carried out in the Mayo Clinic has a good many difficulties, particularly doing the anterior gastroenterostomy and does not present any of those more serious difficulties to my mind which the original Polya operation had. One trouble that seemed to me rather difficult to overcome was that after dissection of the stomach, as recommended by Polya or the Mayo's modification, to put on a second clamp. After having sectioned the stomach by means of the cautery and taken off your Polya's clamp and then to put a second clamp in behind in order to get the anastomosis, that is rather difficult, particularly in the case in which Dr. von Eberts performed it where he had made the section transverse and very high; it must have been difficult to get the stump of the operation closed. It seems to be the ideal operation nevertheless by that third method, bringing the jejunum over the transverse colon and in through the transverse mesocolon and simply performing an antero-gastroenterostomy.

In connection with this subject I want to show a very extensive cancer of the pyloric antrum which has several very interesting features: The patient was a young man aged twenty-five, and had no symptoms other than vomiting, loss of weight and strength. He had applied to the Aviation Corps and had been accepted last October and the history only goes back three months. In performing the operation I made a resection through the lines of the cesophagus vertically downwards and instead of attempting the Polya operation made an antero-gastroenterostomy in this position. The objection to that, as pointed out by Dr. von Eberts, does not hold so much in the anterior as in the posterior, the danger of cutting off the blood supply and having necrosis or leaking of your anastomosis of leaking of your line of section. I think, however, that with improved technique, that Polya's operation in partial gastrectomy will in suitable cases where the patient's condition is such that the complete operation can be done in one stage, will be the operation of choice, it has so many features to recommend it and particularly that in neither of these three cases had Dr. von Eberts any post operative vomiting and in an extensive resection such as he carried out it is one of the most important things that you are able to begin to feed your patient early.

Dr. E. M. von Eberts: With regard to the question of deciding whether it should be a one or a two-stage operation, the two-stage operation should be performed only when absolutely necessary. If improvement is marked after the first stage a second operation may be declined; and again, in the two-stage operation one may have to deal with extensive adhesions which may complicate the technique of the second operation seriously.

2. A Short Note on Irregularities of the Heart in Association with Visceroptosis, by Dr. W. S. Morrow. (Published in this issue.)

DISCUSSION: Dr. W. F. Hamilton: It would appear that cardioposis is not an uncommon condition in connection with ptosis of other organs. X-ray examinations have proved this clearly and if one attends a clinic for a few years one would find scores of cases of "hanging heart", especially with long chest, low diaphragm, low kidney, and low stomach. Just what relation cardioposis bears to neurasthenia is very difficult to define. I am inclined to think that the ptosis of the heart is but a small factor in the whole case and that the irregularity and disturbed cardiac function is a result rather of a general condition than of any local alteration of position the heart may show. It is true that the

possibility exists but I regard these cases in the light of a general condition rather than otherwise. One is reminded of cases of altered cardiac function where a very definite abdominal condition exists, e.g. gall stones. It is well known that recurrent gall stone attacks are associated with marked changes of cardiac function and on removal of the gall stones the heart returns to its normal state. Those cases of neurasthenia with panting in climbing up a hill should be regarded as possessing organic change, and not as cardiac neurasthenia. The musculature of these cases is impaired by toxins from nephritis or other causes.

Dr. W. S. Morrow: In reply to Dr. Hamilton I would say that I am quite ready to admit much of what he has said in a general way. At the beginning of my paper I spoke of how we all recognize a possible relation between general neurasthenia and cisceroptosis, but the point that I wanted to draw attention to was that in some cases we find disturbed heart action with very slight symptoms of neurasthenia in which the readiness with which the heart becomes affected on slight exertion is almost the only thing to suggest the possible presence of visceroptosis. As to the heart muscle being always diseased in these cases I must say that I cannot altogether accept this view because some of them seem to improve very much on fairly simple treatment. I have seen a great many cases in the last few years and my own impression is that when they are a good deal in the erect position there is liable to be a certain amount of dragging on the abdominal organs which produces a condition of fatigue or irritation that makes them very liable to this irregular heart action. Certainly a good many of these show considerable dilatation but in many the heart seems to act normally at times and the symptoms assume the form of attacks of paroxysmal tachycardia which usually recover very quickly, so much so that if I find the heart is down two or three spaces I am apt to give a more favourable prognosis in a case of tachycardia than if I cannot find cardioposis present as a possible cause. I think Dr. Hamilton may go a little to the extreme in minimising the possible effect of the ptosis itself, but I am quite willing to admit that there may often be more or less organic change associated with it.

LIVING CASE: Intussusception in a Young Child with Torsion of the Small Intestine, by Dr. A. E. Garrow.

The child is six months of age and came into hospital about twenty-four hours after being seized with an attack of abdominal

pain with vomiting, the child was admitted about four o'clock in the afternoon having taken ill the night before. It is a breast fed baby, always in perfect health until the evening of February 6th. I saw the child on the afternoon of the following day with a history that it had passed a very restless night. After having this attack of abdominal pain and vomiting it passed blood or bloody stools on several occasions; vomiting was not very frequent. There was no distension of the abdomen but a definite sausage-shaped mass, best felt from the splenic flexure downwards along the descending colon as far as the brim of the pelvis. It had a characteristic feel, was sausage-shaped, curved, and hardened during examination, but became soft at times. When it hardened the child was restless, though it did not cry very much, indeed was very quiet. The child was rather pale and on rectal examination a little bloody mucus escaped. Operation was performed soon after it entered the hospital and the interesting feature was that on opening the abdomen a markedly distended small intestine and markedly contracted small intestine. This was found to be due to torsion of the small bowel in its upper portion, apparently in the jejunum, the torsion being to the left and one and a half complete turns was required before the kink was taken out of the small intestine. This apparently had not long existed because there was not very much alteration in the colour of the bowel; whether it had been a more recent addition to the intussusception I cannot say. This had advanced as far as the left iliac fossa and was exceedingly easily reduced. In fact all that was necessary was to lift up the sigmoid bit by bit and it receded. It was the small intestine which had invaginated. Just when the intussusception was reduced the child stopped breathing and became of a leaden hue and the condition was alarming. While Dr. Bourne was giving the anæsthetic we carried out artificial respiration with cardiac massage and improvement occurred in a minute or two. The incision which I employed here is an incision through the rectus muscles displacing the rectus outward so that no nerve supply is cut. The advantage of this is seen; there is no weakness in the child's abdomen and healing was by primary intention and no attempt was made, nor have I ever made any attempt in reducing these, to do any stitching or shortening of the mesentery. I have had no recurrences and I have not practised any of the methods which have been recommended for preventing recurrences. I could not account for the alarming symptoms which developed at the time the intussusception was reduced; I did it without any dragging, simply lifting the

sheath and following it down and the intussusception reduced itself without the slightest difficulty.

Dr. Winnifred Cullis, Professor of Physiology in the London School of Medicine for Women, London, England, and a member of the British Commission on Venereal Disease, gave a graphic and very interesting account of the educational side of the campaign now being conducted against the social evil in Great Britain and Ireland. Her address was received with the closest attention, and was followed by a discussion in which the need of the development of the campaign along similar lines in this city and province was emphasized, and the active support by the profession of measures tending to this end, urged.

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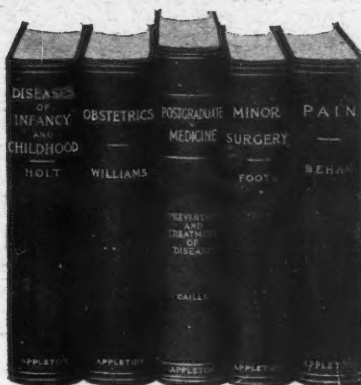
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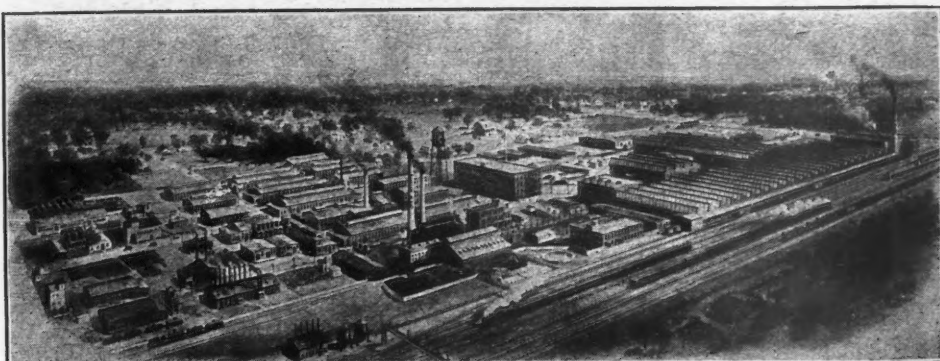
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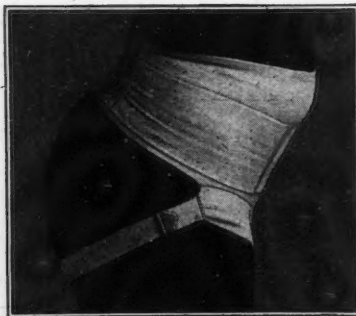
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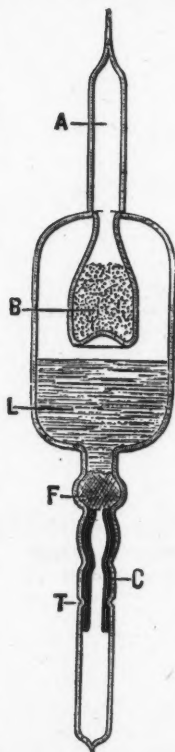
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TORONTO, DECEMBER, 1918

No. 12

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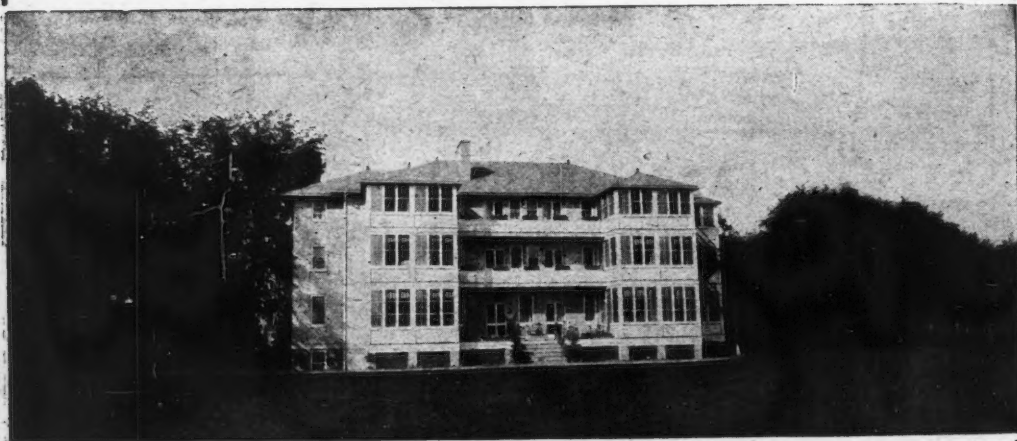
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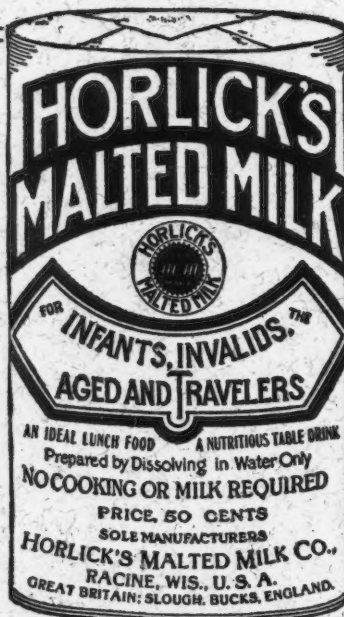
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